

INDEX OF SUBJECTS.

TRANSACTIONS, PROCEEDINGS, AND ABSTRACTS.

1903.

(Marked T., P., and A., i and A., ii respectively.)

A.

Abietic acid, action of, on ferments (EFFRONT), A., ii, 565.

Absinth, analysis of (SANGLÉ-FERRIÈRE and CUNIASSE), A., ii, 337. detection of methyl alcohol in (SANGLÉ-FERRIÈRE and CUNIASSE), A., ii, 393.

estimation of essences in (SANGLÉ-FERRIÈRE and CUNIASSE), A., ii, 247.

Absorption and fermentative splitting of disaccharides in the small intestine of dogs (ROHMANN and NAGANO), A., ii, 494.

intestinal (HOBER), A., ii, 309.

synthesis of fats during (MOORE), A., ii, 667.

in the stomach (REACH), A., ii, 664.

in the stomach and small intestine (ZUNZ), A., ii, 159.

of proteids (OPPENHEIMER), A., ii, 738; (ASCOLI and VIGANO), A., ii, 739.

Absorption by decomposed rocks (DITTRICH), A., ii, 176.

Absorption apparatus and gas-washing flask, new form of (WETZEL), A., ii, 237.

Accumulator. See Electrochemistry.

Acenaphthanthraquinone (GRAEBE and HAAS), A., i, 410.

Acenaphthene, 4-acetyl-, and its 4-amino-derivative and oxime (GRAEBE and HAAS), A., i, 409.

4-amino- and 4-nitro- (GRAEBE and BRIONES), A., i, 408.

4-bromo- (GRAEBE and GUINSBOURG), A., i, 408.

Acenaphtheneimine and its salts and acetyl derivative (FRANCESCONI and PIRAZZOLI), A., i, 501.

Acenaphthenequinone, condensations of, with ethyl acetoacetate (RECCHI), A., i, 261.

oximes, semicarbazones, peroxide and hydrazone (FRANCESCONI and PIRAZZOLI), A., i, 500.

Acenaphthenequinone, 4-bromo-, and its dioxime and phenylhydrazones (GRAEBE and GUINSBOURG), A., i, 408.

4-Acenaphthoyl-o-benzoic acid and its esters and their picrates (GRAEBE and PERUTZ), A., i, 409.

Acet-. See also Aceto-, Acetyl-, and under the parent Substance.

Acetaldehyde, formation of (SABATIER and SENDERENS), A., i, 393.

physical and natural equilibrium between the modifications of (ROOZEBOOM), A., ii, 135; (HOLLMANN), A., ii, 414.

equilibria of phases in the system, paracetaldehyde and, with and without molecular transformation (ROOZEBOOM), A., ii, 135.

oxidation of (SLABOSZEWCZ), A., i, 150. in the ageing and alterations of wine (TRILLAT), A., ii, 231.

Metacetaldehyde, physical constants of (BURSTYN), A., i, 67.

Paracetaldehyde, combination of, with mannitol (MEUNIER), A., i, 727.

Acetaldehydecyanohydrin, condensation of, with methylaniline (SACHS and KRAFT), A., i, 335.

Acetaldehydophenylhydrazone (BAMBERGER and PEMSEL), A., i, 284.

Acetamide hydrobromide and hydriodide (WERNER), A., i, 235.

Acetamide, chloro-, action of, on aromatic amines (LUMIÈRE and PERRIN), A., i, 832.

Acetamide, chloro-*N*-bromo-, -chloro-, and -iodo-, (FRANCESCONI and DE PLATO), A., i, 798.

Acetanilide-quinoline- and -isoquinoline-ammonium salts (SCHEMA), A., i, 410.

Acetanilide-trimethyl- and -pyridine-ammonium salts (SCHEMA), A., i, 410; (SCHMIDT), A., i, 427.

Acetic acid, heat of fusion of (DE FORCRAND), A., ii, 409.

action of mineral acids on (PICTET, GELEZNOFF, and FRIEDMANN), A., i, 309; (PICTET), A., i, 456; (PICTET and GENEQUAND; PICTET and GELEZNOFF), A., i, 601.

detection and estimation of mineral acid in (SCHIDROWITZ), A., ii, 700.

Acetic acid, salts, compounds of, with pyridine (REITZENSTEIN), A., i, 112.

ammonium salts (REIK), A., i, 308.

barium salt, hydrates and solubility of (WALKER and FYFFE), T., 173.

cobalt and manganese salts, oxidation of, by chlorine (COPAUX), A., i, 309.

cuprous salt (PÉCHARD), A., ii, 293.

lead salt (*lead tetra-acetate*), thermodynamics of (COLSON), A., i, 396, 456, 601.

silver salt, action of, on halogen-diphenacyls (PAAL and SCHULZE), A., i, 709.

sodium salt, solubility of, in alcohol and water (SCHIAVONI), A., i, 396.

thallium and thallium ammonium salts (MEYER and GOLDSCHMIDT), A., ii, 212.

Acetic acid, ethyl ester, and ethyl propionate, vapour pressures and boiling points of mixtures of (YOUNG and FORTEY), T., 47.

action of phenylhydrazine on (BAIDAKOWSKY and SLEPAKA), A., i, 441.

n-octyl ester (BOUVEAULT and BLANC), A., i, 598.

Acetic acid, amino-. See Glycine.

bromonitro- and nitro-, methyl esters, and their salts (WIELAND), A., i, 769.

chloro-derivatives, salts, compounds of, with pyridine (REITZENSTEIN), A., i, 112.

chloro-, action of potassium selenocyanate on compounds of (FREERICHS), A., i, 609.

bornyl and menthyl esters (EINHORN and JAHN), A., i, 351.

o-, *m*-, and *p*-tolyl esters (EINHORN and HÜTZ), A., i, 90.

mono-, *di*-, and *tri*-chloro-, action of, on bases (REITZENSTEIN), A., i, 435.

Acetic acid, mono- and *tri*-chloro-, methylene and chloromethyl esters (DESCUDÉ), A., i, 600.

dichloro-, latent heat of vaporisation of (LUGININ), A., ii, 7.

cyano-, esters, action of *p*-nitrobenzyl chloride on (ROMEO), A., i, 260.

ethyl ester, constitution of, and condensation of, with its sodium derivative (REMFRY and THORPE), P., 241.

condensation of, with aldehydes (GUARESCHI), A., i, 736.

compound of, with 2-ethoxy-*a*-naphthaldehyde (HELBORN-NER), A., i, 764.

menthyl ester, and its bromo-derivative (BOWACK and LAPWORTH), P., 22.

disfluoro-, and its salts, ethyl ester, amide, and chloride (SWARTS), A., i, 727.

dinitro-, ethyl ester, and its ammonium and potassium derivatives (BOUVEAULT and WAHL), A., i, 225.

thio-, action of aryl thiocyanates on (SPAHR), A., i, 477.

Peracetic acid (CLOVER and RICHMOND), A., i, 397.

Acetic anhydride, nitroso- (FRANCESCONI and CIALDEA), A., i, 788.

chloride, action of, on selenic acid (LAMB), A., i, 732.

peroxide and its hydrolysis (CLOVER and RICHMOND), A., i, 396.

Aceto-. See also Acet, Acetyl-, and under the parent Substance.

Acetoacetic acid, detection of, in diabetic urine (RIEGLER), A., ii, 112.

Acetoacetic acid, esters, action of aliphatic acid chlorides on the sodium derivatives of (BOUVEAULT and BONGERT), A., i, 63, 64.

action of *p*-nitrobenzyl chloride on (ROMEO), A., i, 260.

C- and *O*-acyl derivatives of, and their copper compounds (BOUVEAULT and BONGERT), A., i, 63, 64.

substituted, action of acid chlorides on the sodium derivatives of (BOUVEAULT and BONGERT), A., i, 144.

ethyl ester, condensation of, with carvone, in presence of hydrogen chloride (RABE), A., i, 268; (RABE and WEILINGER), A., i, 269.

condensation of, with carvone, in presence of sodium ethoxide (RABE and WEILINGER), A., i, 268.

Acetoacetic acid, ethyl ester, compounds of, with metallic chlorides and silicon tetrachloride (ROSENHEIM, LOEWENSTAMM, and SINGER), A., i, 603.
 the supposed separation of the two desmotropic forms of (RABE), A., i, 62.
 menthyl ester, condensation of, with aldehydes (HANN and LAPWORTH), P., 291.
 azo-derivatives of (LAPWORTH), T., 1114; P., 149.

Acetol. See Acetylcarbinol.

Acetone, heat of formation of the compound of, with hydroferrocyanic acid (CHRÉTIEN and GUINCHANT), A., i, 612; ii, 589.
 condensation of, with ethyl succinate (STOLLÉ), A., i, 317.
 combination of, with red mercuric iodide by rise of temperature (GERNEZ), A., ii, 598.
 in diabetes (LE GOFF), A., ii, 675.
 in normal horse's urine (KIESEL), A., ii, 670.

Acetone, amino-, and its salts (GABRIEL and COLMAN), A., i, 13.

Acetonebutyrylhydrazone (BOUVEAULT and BONGERT), A., i, 64.

Acetonedicarboxylic acid, esters, action of epichlorohydrin on the sodium derivatives of (HALLER and MARCH), A., i, 318, 714.

Acetonitric acid, salts (PICTET and KLEIN), A., i, 675.

Acetonitrile, amino-, salts (KLAGES), A., i, 469.

Acetonylnitromeconine, reduction of (BOOK), A., i, 653.

Acetyltnitromeconineoxime, and its phenylhydrazone and semicarbazone (BOOK), A., i, 653.

Acetophenone in coal tar (WEISSGERBER), A., i, 348.
 action of aluminium bromide on (KONOWALOFF and FINOGUÉEFF), A., i, 264.
 condensation of, with benzylidene-propiophenone (ABELL), T., 360; P., 17.
 action of formaldehyde on (VAN MARLE and TOLLENS), A., i, 493.
 condensation of, with hypophosphorous acid (MARIE), A., i, 678.
 dimethylacetel of (MOUREU), A., i, 699.

Acetophenone, *p*-amino-, chloro- and acyl-derivatives of (CHATTAWAY), P., 50.
 diketones and tetraketones from (BÜLOW and NOTTBOHM), A., i, 274, 862.

Acetophenone, bromodinitro-, and α -mono- and α -*p*-di-nitro-, and their dimethylacetals (THIELE and HAECKEL), A., i, 160.
o-nitro-, reduction of (CAMPUS), A., i, 33; (BAMBERGER and ELGER), A., i, 560.
 synthesis of indigo-blue from (CAMPUS), A., i, 33.
m-nitro-, electrochemical reduction of (ELBS and WOGRINZ), A., i, 635.
 α -nitro- and α -*p*-dinitro- (WIELAND), A., i, 767.

Acetophenoneoxime, α -*p*-dinitro- (WIELAND), A., i, 767.

Acetophenoneazo-carbamide and -cyanide (WOLFE, BOCK, LORENTZ, and TRAPPE), A., i, 205.

Acetophenone-*o*-carboxylic acid, α -nitro-, and its silver salt (GABRIEL), A., i, 345.

Acetoxyacetic acid. See Glycollo-glycolic acid.

4-Acetoxycoumarin (ANSCHÜTZ), A., i, 271.

4-Acetoxy-3,6-dimethoxyphenanthrene-9-carboxylic acid (PSCHORR, SEYDEL, and STÖHRER), A., i, 168.

Acetoxydiphenacyl and its hydrolysis (PAAL and SCHULZE), A., i, 709.

4-Acetoxy-3-methoxyphenanthraquinone. See Acetyl methylmorpholinquinone.

4-Acetoxy-3-methoxyphenanthrene-9-carboxylic acid (PSCHORR and VOGTHERR), A., i, 184.

5-Acetoxy-1-methylbenzoxazole (HENRICH and WAGNER), A., i, 89.

Acetoxyethylpyromucic acid (FISCHER and ANDREAE), A., i, 678.

β -Acetoxy- β -phenylacrylic acid, α -cyano-, methyl ester (SCHMITT), A., i, 398.

Acetyl- See also Acet-, Aceto-, and under the parent Substance.

Acetylacetone, condensation of, with aldehydes (KNOEVENAGEL, BIALON, RUSCHHAUPT, SCHNEIDER, CRONER, and SÄNGER), A., i, 637.
 compounds of, with metallic chlorides (ROSENHEIM, LOEWENSTAMM, and SINGER), A., i, 603.
 compounds of, with molybdic acid (ROSENHEIM and BERTHEIM), A., ii, 374.

Acetylacetonearabinamine (ROUX), A., i, 463.

Acetylacetonebenzylideneacetoacetic acid, ethyl ester (KNOEVENAGEL), A., i, 638.

Acetylacetonedioxime, electrolytic reduction of (TAFEL and PFEFFERMANN), A., i, 287.

Acetylacetonemethylaminebenzylidene-acetoacetic acid, ethyl ester (KNOEVENAGEL, ERLER, and REINECKE), A., i, 652.

Acetylalanine and chloro-derivative of its ester (FISCHER and OTTO), A., i, 608.

m-**Acetylaminobenzaldehyde** and its oxime, and 6-nitro-, and its phenylhydrazone (FRIEDLÄNDER and FRITSCH), A., i, 346.

m-**Acetylaminobenzoic acid**, 2-, 4-, and 6-chloro- (BAMBERGER and DE WERRA), A., i, 21; (BAMBERGER, TER-SARKISSJANZ, and DE WERRA), A., i, 25.

6-nitroso- (FRIEDLÄNDER and FRITSCH), A., i, 347.

β-Acetylaminobenzoic acid, β -naphthyl ester (REVERDIN and CRÉPIEUX), A., i, 29.

N-*o*-**Acetylaminobenzoylantranilic acid** (ANSCHÜTZ, SCHMIDT, and GREIFFENBERG), A., i, 57.

4-Acetylamo-1-p-dimethylbenzoyl-2-methylcoumarone (KUNCKELL and KESSELER), A., i, 509.

3-Acetylamo-2-methyl-10-ethyl-1:2-naphthaclidinium p-toluenesulphonate (ULLMANN and WENNER), A., i, 407.

3-Acetylaminophenyllactyl methyl ketone, 6-nitro- (FRIEDLÄNDER and FRITSCH), A., i, 347.

3-Acetylaminophthalic anhydride (KAHN), A., i, 696.

Acetylamo-. See also under the parent Substance.

Acetylanthranil (ANSCHÜTZ and SCHMIDT), A., i, 57.

action of anthranilic acid on (ANSCHÜTZ, SCHMIDT, and GREIFFENBERG), A., i, 57.

action of phosphorus oxychloride on (ANSCHÜTZ and SCHMIDT), A., i, 56.

Acetylation of some amino-derivatives of the naphthalene and quinoline groups (CYBULSKY), A., i, 775.

of some unsaturated amines (POTOZKY), A., i, 795.

Acetylbarbatic acid (HESSE), A., i, 703.

Acetylcamphocarboxylic acid, methyl and amyl esters (BRÜHL), A., i, 64.

Acetylcamphor (MALMGREN), A., i, 711.

Acetylcarbamic acid, esters (BILLETER), A., i, 800.

Acetylcarbimide (BILLETER), A., i, 800.

Acetylcarbinol (acetol) and its reduction products (KLING), A., i, 223.

reduction of (KLING), A., i, 138.

methyl and ethyl ethers of, and their hydrazones (LEONARDI and DE FRANCHIS), A., i, 787.

Acetylchromic acid (PICTET), A., i, 456; (PICTET and GENEQUAND), A., i, 601.

1-Acetylcoumarone and its dibromo-derivative (STOERMER and SCHÄFFER), A., i, 846.

β -Acetyl-β-benzoin and -butyrin (GUTH), A., i, 227.

C-Acetyl dimethylallanturic acid (BEHREND and FRICKE), A., i, 740.

5-Acetyl-1:4-dimethylpyrazole-3-carboxylic acid, and its ethyl ester (KLAGES and RÖNNEBURG), A., i, 529.

β -Acetyl- $\alpha\beta$ -diphenyl- α -ethyloxidoethane and its semicarbazone (JAPP and MICHEL), T., 297.

2-Acetyl-1:3-diphenyl-5-cyclohexenone-4-carboxylic acid, ethyl ester (KNOEVENAGEL and ERLER), A., i, 637.

γ -Acetyl- $\beta\gamma$ -diphenyl- α -methyl- $\beta\gamma$ -oxidobutyric acid and its silver salts, its lactone, and the action of phenylhydrazine on it (JAPP and MICHEL), T., 282; P., 21.

γ -Acetyl- $\beta\gamma$ -diphenyl- $\beta\gamma$ -oxido butyric acid and its semicarbazone (JAPP and MICHEL), T., 281; P., 21.

Acetylene, action of, on caesium-ammonium and on rubidium-ammonium (MOISSAN), A., i, 545.

influence of traces of water on the decomposition of alkali hydrides by (MOISSAN), A., i, 785.

Acetylene, dibromo- (LEMOULT), A., i, 595.

purification, cryoscopy, and analysis of (LEMOULT), A., i, 673.

Acetylene acetylides, preparation of (MOISSAN), A., i, 545, 595.

Acetylene black, combustion of, in oxygen (MOISSAN), A., ii, 142.

Acetylglycolic acid, amide, and chloride (ANSCHÜTZ and BERTRAM), A., i, 229.

Acetylglycylglycine and chloro-, and the ester of the chloro-compound (FISCHER and OTTO), A., i, 609.

2-Acetylmino-4-keto-3- β -naphthyltetrahydroiazole and its isomeride (JOHNSON), A., i, 580.

Acetyl lactic acid and chloride (ANSCHÜTZ and BERTRAM), A., i, 229.

4-Acetyl-5-methylaziminole, oxime of (WOLFE, BOCK, LORENTZ, and TRAPPE), A., i, 207.

5-Acetyl-4-methyl-1-ethylpyrazole-3-carboxylic acid, and its ethyl ester (KLAGES and RÖNNEBURG), A., i, 529.
Acetyl methylglyoxime (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 210.
Acetyl methylmorpholinone, synthesis of, and its 9-carboxylic acid (PSCHORR and VOGTHERR), A., i, 184.
5-Acetyl-4-methylpyrazole and its -3-carboxylic acid, and its esters, and phenylhydrazone (KLAGES and RÖNNEBURG), A., i, 528.
5-Acetyl-4-methylpyrazole-3-carboxylic acid and its ethyl ester (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 209.
N-Acetyl methyl dithiocarbamic acid, benzyl and methyl esters (DELÉPINE), A., i, 237.
Acetyl methylthiodiazole and its mercurichloride, oxime, and semicarbazone (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 208.
Acetyl- β -naphthafuran and its oxime, phenylhydrazone, semicarbazone and bromo-derivatives (STOERMER and SCHÄFFER), A., i, 847.
Acetylnaphthalic anhydride (GRAEBE and HAAS), A., i, 409.
6-Acetylphenoxazine and 3:9-dinitro- (KEHRMANN and SAAGER), A., i, 279.
Acetylphenylethylsemicarbazide (BUSCH and FREY), A., i, 539.
5-Acetyl-4-phenylpyrazole-3-carboxylic acid, and its ethyl ester (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 209.
Acetylphenyl dithiocarbazinic acid, methyl ester (BUSCH and SCHNEIDER), A., i, 534.
Acetylphenylthiodiazole and its semicarbazone (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 207.
Acetylpropionyl mono-acetylhydrazone and its methyl ester, and semicarbazone, and their sodium derivatives (DIELS and VOM DOPP), A., i, 862.
Acetylquinine, preparation of (CHEMISCHE FABRIK VON HEYDEN), A., i, 513.
Acetysalicylic acid peroxide (UHLFELDER), A., i, 174.
Acetyl tetrahydro naphthastyril (SCHROETER and RÖSSLER), A., i, 118.
Acetylthebaolquinone, synthesis of, (PSCHORR, SEYDEL, and STÖHRER), A., i, 167.
Acetyltriazole, hydroxy-, and its salts and semicarbazone (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 206.
Acetyltrimethyldehydrobrazilin, bromo- (HERZIG and POLLAK), A., i, 270.
Acetyltrimethylene (SCHEMA), A., i, 509; (HARRIES), A., i, 606.

Acid, C₆H₁₀O₃, from the oxidation of trihydroxydihydro- α -camphoric acid (PERKIN), T., 840.
C₇H₁₂O₃, from the action of sulphuric acid on $\Delta^{1:4}(8)$ -terpadienol (2) or (3) (MANASSE and SAMUEL), A., i, 46.
C₉H₇ON₃, from benzoylacetonediazo-anhydride (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 205.
C₉H₁₄O₁₂N₄, from C₉H₁₆O₉N₄, or from C₁₇H₄₀O₁₃N₄ (KLAGES), A., i, 469.
C₉H₁₆O₃, and its semicarbazone, oxime, and silver salt, from the oxidation of pulegone (WALLACH and SELDIS), A., i, 568.
C₉H₁₆O₉N₄, from the hydrolysis of C₁₇H₄₀O₁₃N₄ (KLAGES), A., i, 469.
C₁₀H₁₁O₃N, and its benzoyl derivative, from the reduction of methyl o-nitro-p-carboxyphenoxyacetamide (EINHORN and RUPPERT), A., i, 260.
C₁₀H₁₄O₄, and its esters and salts, obtained in the preparation of ethyl teraconate (STOLLE), A., i, 317.
C₁₀H₁₆O₂, and its metallic salts, from the oxidation of pinene (HENDERSON, GRAY, and SMITH), T., 1303; P., 196.
C₁₀H₁₈O₆, from the oxidation of $\alpha\alpha'\alpha'$ -tetramethyldihydromuconic acid (BONE and HENSTOCK), T., 1386; P., 248.
C₁₁H₉O₇N, from the hydrolysis of ethyl phthalimonomalonate (SÖRENSEN), A., i, 833.
C₁₁H₁₁O₂, from pinene (HOUBEN and KESSELKAUL), A., i, 42.
C₁₂H₁₈O₈N₂, and its lactam, from the reduction of ethyl $\beta\gamma$ -diimino- $\alpha\delta$ -dimethylidicarboxyadipate (TRAUBE), A., i, 76.
C₁₄H₁₂O₃N₂, from the reduction of o-nitrobenzyl alcohol (FREUNDLER), A., i, 372.
C₁₄H₁₂O₅S, and its salts, from phenoxycacetophenone (STOERMER and ATENSTÄDT), A., i, 41.
C₁₄H₁₄O₅N₂S, from 4-diazo-*m*-xylene-5-sulphonic acid and resorcinol (JUNGHAHN), A., i, 23.
C₁₄H₂₁O₃N₃, from the base C₁₄H₁₉O₂N₃ (PRAGER), A., i, 540.
C₁₅H₁₅O₉N, from the hydrolysis of ethyl γ -cyanopropylphthalimonomalonate (SÖRENSEN), A., i, 834.
C₁₆H₁₄O₃, and its dibromide, from α -oxydiphenylbutyrolactone, constitution of (ERLENMEYER and ARBENZ), A., i, 418.
C₁₇H₄₀O₁₃N₄ (ethyl ester), from methyleneaminooacetonitrile (KLAGES), A., i, 469.

Acid, $C_{18}H_{16}O_4N_2S$, and its sodium salt, from 4-diazo-*m*-xylene-5-sulphonic acid and β -naphthol (JUNGHAHN), A., i, 23.
C₁₉H₁₈O₂, from 1:4:5-trihydroxy-4:5-diphenyl-1:3-dimethylcyclopentanone-2 (JAPP and MICHIE), T., 302.
C₁₉H₂₀O₃, from the α -oxylactone, C₁₉H₁₈O₃ (ERLENMEYER), A., i, 419.
C₂₀H₁₈O₈, and its ester and diacetyl derivative, from benzaldehyde and citric acid (MAYRHOFER and NEMETH), A., i, 344.
C₂₀H₃₂O₃, and its ethyl ester, from cholesterol (DIELS and ABDERHALDEN), A., i, 819.
C₂₁H₁₈O₄N₂, from the substance C₂₃H₂₄O₄N₂ (KNOEVENAGEL and HEEREN), A., i, 660.
C₂₂H₂₀O₁₀N₂, from the hydrolysis of ethyl phthalimino- γ -phthalimino-propylmalonate (SØRENSEN), A., i, 834.
Acid amides. See Amides.
Acid anhydrides. See Anhydrides.
Acid chlorides, interactions of, with ketones and aldehydes (LEES), T., 145.
action of silver cyanate on (BILLETER), A., i, 484, 800, 821.
fatty, action of, on the sodium derivatives of acetoacetic esters (BOUVEAULT and BONGERT), A., i, 63, 64, 144.
Acidimetry, electrolysis of copper sulphate as a basis for (LANGE), A., ii, 106.
Acids from cholesterol (MAUTHNER and SUIDA), A., i, 625.
of the fat of the Californian bay tree (STILLMAN and O'NEILL), A., ii, 171.
of datura oil (HOLDE), A., i, 141.
of the oil of *Elaeococca Vernicia* (KAMETAKA), T., 1042; P., 200; (MAQUENNE) A., i, 62.
from Iceland moss (SIMON), A., i, 98.
from lichens (HESSE), A., i, 702; (ZOPF), A., i, 762.
from yeast (HINSBERG and Roos), A., ii, 565.
syntheses of, by means of magnesium organic compounds (HOUBEN and KESSELKAUL), A., i, 42.
ebullioscopic behaviour of, in benzene solutions (MAMELI), A., ii, 711.
change of the velocity of amidification of, with reference to their structure (MENSCHUTKIN, KRIEGER, and DITRICH), A., ii, 357.

Acids, action of emulsin and other ferments on (SLIMMER), A., i, 218.
addition of, to $\alpha\beta$ -unsaturated ketones (VORLÄNDER and MUMME), A., i, 495; (VORLÄNDER), A., i, 632; (THIELE and STRAUS), A., i, 707.
additive compounds of various (HOGEWERFF and VAN DORP), A., i, 170.
Acids of the acetylene series (MOUREU: MOUREU and DELANGE), A., i, 312.
esters, condensation of, with alcohols (MOUREU), A., i, 698.
Acids, monobasic, solubility of salts of optically active (POMERANZ), A., ii, 65.
acid salts of, and the effect of water and alcohol on them (FARMER), T., 1440; P., 274.
Acids, dibasic, velocity of hydrolysis of aryl and benzyl esters of (BISCHOFF and v. HEDENSTRÖM), A., i, 87.
Acids, as-dibasic, nomenclature of the hydrogen esters of (WEGSCHEIDER), A., i, 146.
Acids, di- and tri-basic, organic, decomposition of (OECHSNER DE CONINCK and RAYNAUD), A., i, 231.
Acids, as-di- and poly-basic, esterification of (WEGSCHEIDER and FURCHT), A., i, 342; (WEGSCHEIDER and v. RUŠNOV), A., i, 702; (WEGSCHEIDER and HECHT), A., i, 760.
Acids, polybasic, relative affinities of (DAWSON), T., 725; P., 135.
Acids, carbohydrate, experiments on the (MEYER), A., ii, 313.
Acids, fatty, formed by Ascaris (WEINLAND), A., ii, 666.
of egg-lecithin (COUSIN), A., i, 675.
and their derivatives in phenol solution, relation between constitution and change of association of (ROBERTSON), T., 1425; P., 223.
action of, on metals at high temperature (HÉBERT), A., i, 396.
bornyl and isobornyl esters, rotation of (MINGUIN and DE BOLLEMONT), A., i, 352.
higher, titration of (KANITZ), A., ii, 248.
lower, and their esters, latent heats of (BROWN), T., 992; P., 164.
unsaturated, with a double linking in the $\alpha\beta$ -position, preparation of (RUPE, RONUS, and LÖTZ), A., i, 139.
and their glycerides, reduction of (HERFORDER MASCHINEFETT- & OEL-FABRIK), A., i, 547.
separation of (FARNSTEINER), A., ii, 394.

Acids, inactive, the biological method of resolving, into their optically active components (MCKENZIE and HARDEN), T., 424; P., 48.

Acids, inorganic, action of, on cellulose (GOSLING), T., 190.

complex (ROGERS), A., ii, 375.

Acids, mineral, esterification of (VILLIERS), A., i, 599, 674, 732.

Acids, organic, synthesis of (WALTHER), A., i, 67.

action of heat on (OECHSNER DE CONINCK), A., i, 730.

action of, on the conductivity of yellow molybdic acid (GROSSMANN and KRAMER), A., i, 549.

decomposition of (OECHSNER DE CONINCK and RAYNAUD), A., i, 231, 457, 458.

occurrence and estimation of, in wine (PARTHEIL and HUBNER), A., ii, 765.

Acids of the sorbic acid series, synthesis of (JAWORSKY and REFORMATSKY), A., i, 4; (JAWORSKY), A., i, 728, 729, 730.

Acids, unsaturated, of the series $C_nH_{2n-2}O_2$, action of nitrogen peroxide on (EGOROFF), A., i, 789, 790.

oxidation of, by Caro's reagent (ALBITZKY), A., i, 228.

electrolytic reduction of (MARIE), A., i, 605.

Acids. See also Aldehydic acids, Amic acids, Amino-acids, Hydroxy-acids, Hydroxyamino-acid, Keto-lactonic acids, Ketonic acids, β -keto-olefine-carboxylic acids, Olefinedicarboxylic acids, Pseudo-acids, and Thio-acids.

Acocantherin (FAUST), A., i, 191.

Aconitic acid (*propylenetricarboxylic acid*), electrolytic reduction of (MARIE), A., i, 605.

Acridine colouring matters. See under Colouring matters.

syntheses from aldehydes and aromatic bases (ULLMANN), A., i, 519.

Acridine, diamino-, asymmetric alkylated, colouring matters (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 518.

Acridyl sulphide (*acridylthiolacriderol*) and its salts (EDINGER and RITSEMA), A., i, 720.

Acrylic acid and its methyl ester, action of nitrogen peroxide on (EGOROFF), A., i, 789.

Actinians, poisons in the tentacles of (RICHET), A., ii, 317.

Actinium and its salts, production of induced radioactivity by (DEBIERNE), A., ii, 257, 348.

C-Acylacetic acids, esters, synthesis of ketones and acylacetones from (BOUVEAULT and BONGERT), A., i, 141.

Acylacetic acids, esters, synthesis of, from *C*-acylacetoacetic esters (BOUVEAULT and BONGERT), A., i, 142.

Acylacetic acids, cyano-, esters, new derivatives of (SCHMITT), A., i, 398.

Acylacetoacetic acids, esters, mutual isomeric transformations of (BOUVEAULT and BONGERT), A., i, 145.

C-Acylacetoacetic acids, esters, synthesis of acylacetic esters from (BOUVEAULT and BONGERT), A., i, 142.

reactions and decompositions of (BOUVEAULT and BONGERT), A., i, 144.

Acylacetones, synthesis of, from *C*-acyl-acetic esters (BOUVEAULT and BONGERT), A., i, 141.

as-Acylamidines, molecular rearrangement of, into isomeric symmetrical derivatives (WHEELER, JOHNSON, and MCFARLAND), A., i, 858.

Acylantranilis (ANSCHÜTZ, SCHMIDT, and GREIFFENBERG), A., i, 57.

Acylhalogenamine derivatives and the Beckmann rearrangement (STIEGLITZ), A., i, 235; (SLOSSON), A., i, 475.

Acylhydrazides and their derivatives, heterocyclic compounds from (STOLLE), A., i, 721.

Acylidithiourethanes (DELÉPINE), A., i, 156, 236, 237.

Adamide, artificial production of (DE SCHULTEN), A., ii, 655.

Address, congratulatory, to the Literary and Philosophical Society of Manchester on the occasion of the Dalton Centenary, P., 140.

presidential (REYNOLDS), T., 639; P., 81.

Adhesion and solution, the phenomena of (PATTEN), A., ii, 272.

Adipic acid (*butanedicarboxylic acid*), α -amino-, and its benzoyl derivative (SØRENSEN), A., i, 834.

$\beta\gamma$ -diamino- and $\alpha\delta$ -dibromo- $\beta\gamma$ -diamino-, and their di-lactams and salts (TRAUBE), A., i, 76; (KÖHL), A., i, 234.

Adlumia cirrhosa, alkaloids of (SCHLÖTERBECK and WATKINS), A., i, 512.

Adlumine and **Adlumidine** (SCHLÖTERBECK and WATKINS), A., i, 512.

Adrenal hydrochloride (*chloradrenal*), influence of, in the organism (DE POEHL), A., ii, 164.

Adrenaline (*suprarenine*) (ABEL), A., i, 376, 670, 784; (v. FÜRTH), A., i, 669.

Adrenaline, extraction of, from suprarenal capsules (TAKAMINE), A., i, 376.
 oxidation of, with nitric acid (ABEL), A., i, 376.
 the blood after administration of (VOSBURGH and RICHARDS), A., ii, 307.
 See also Epinephrine.

Esculin and tannin in horse chestnut (GORIS), A., ii, 507.

AFFINITY, CHEMICAL :—

Affinity at low temperatures (MOISSAN and DEWAR), A., ii, 419.

Affinities, relative, of polybasic acids (DAWSON), T., 725; P., 135.
 of some feebly basic substances (WOOD), T., 568; P., 67.

Affinity constants of ethyl malonate (VORLÄNDER), A., i, 230; (GOLD-SCHMIDT and SCHOLZ), A., i, 458.
 of pyridine and of α -, β -, and γ -picolines (CONSTAM and WHITE), A., i, 277.

Association of a liquid diminished by the presence of another associated liquid (JONES and MURRAY), A., ii, 637.
 change of the "rate" of, of fatty acids and their derivatives in phenol solution (ROBERTSON), T., 1425; P., 223.

Mass action, lecture experiments to demonstrate the law of (V. DIETRICH and WÖHLER), A., ii, 274.

Kinetics of oxidation with permanganate (SCHILOFF), A., ii, 720.

Chemical action in liquid hydrogen cyanide (KAHLENBERG and SCHLUNDT), A., ii, 57.

change, initial acceleration in (VELEY), A., ii, 641.
 dynamics of the reactions between benzene and chlorine under the influence of different catalytic agents and of light (SLATOR), T., 729; P., 135.
 of the Friedel-Crafts' reaction (STEELE), T., 1470; P., 209.
 energy in connection with the phenomena exhibited by radium (BEKETOFF), A., ii, 623.
 reaction between phosphorous acid and mercuric chloride (MONTE-MARTINI and EGIDI), A., ii, 65.

Catalysts, chemical rôle of (ZELINSKY), A., i, 802.
 influence of, on the speed of formation of amides and anilides (MENSCHUTKIN), A., i, 818.

AFFINITY, CHEMICAL :—

Catalytic action of aluminium chloride in the reactions of sulphuryl chloride (RUFF), A., ii, 149.
 of the hydrogen ions of acids on hydrolytic reactions, cause of (ROHLAND), A., ii, 16.
 oxidation of ammonia and amines by (TRILLAT), A., ii, 201.
 agents, influence of, on the reactions between benzene and chlorine (SLATOR), T., 729; P., 135.
 influence of, on the functions of the organism (DE POEHL), A., ii, 164.
 decomposition of alcohols by finely divided metals (SABATIER and SENDERENS), A., i, 393, 453, 454.
 of ethyl alcohol by carbon and by metals (EHRENFIELD), A., i, 306; (IPATIEFF), A., i, 453.
 of ethyl alcohol by finely-divided metals (SABATIER and SENDERENS), A., i, 393.
 of hydrogen peroxide (LOEVENHART and KASTLE), A., ii, 415; (BÖCK), A., ii, 416; (KASTLE and LOEVENHART), A., ii, 537.
 oxidation of alcohols (TRILLAT), A., i, 222.
 reactions caused by metals (TRILLAT), A., ii, 589.

Catalysis and catalysts (BODENSTEIN), A., ii, 66.
 a periodic contact (BREDIG and WEINMAYR), A., ii, 279.
 of salts of peracids (PISSARJEWSKY), A., ii, 66, 375.

Chemical equilibrium, principle of (MARKOWNIKOFF), A., ii, 200.
 laws and equations of (ARIÈS), A., ii, 589.
 in precipitation reactions (KÜSTER and THIEL), A., ii, 136, 510.
 in the blast furnace (SCHENCK and ZIMMERMANN), A., ii, 423.
 between carbamide and ammonium cyanate (FAWSITT), A., ii, 15; (WALKER), A., ii, 136.
 $\text{CO}_2 + \text{H}_2 = \text{CO} + \text{H}_2\text{O}$ (HAHN), A., ii, 274, 711.
 between iron oxides and carbon monoxide and carbon dioxide (BAUR and GLAESSNER), A., ii, 423.
 between maltose and dextrose (POMERANZ), A., ii, 65.
 in the system: sodium carbonate, sodium hydrogen carbonate, carbon dioxide, and water (McCoy), A., ii, 413.

AFFINITY, CHEMICAL:—

Chemical equilibrium in the system: succinonitrile, silver nitrate, and water (MIDDELBERG), A., ii, 414.

Decomposition of ammonium nitrite (BLANCHARD), A., ii, 18. the conditions of the (VELEY), T., 736; P., 142.

of carbamide (FAWSITT), A., ii, 15; (WALKER), A., ii, 136.

of carbon monoxide (SCHENCK and ZIMMERMANN), A., ii, 423; (SMITS and WOLFF), A., ii, 638.

of hydrated mixed crystals (HOLL-MANN), A., ii, 279.

Decomposition curves of solutions of copper salts (HEIBERG), A., ii, 263; (ABEL), A., ii, 407.

Distribution coefficient of sulphur dioxide between water and chloroform (McCRAE and WILSON), A., ii, 474.

Partition coefficients, formation of hydrates deduced from (VAUBEL), A., ii, 471.

Hydrolysis, theory of the process of (LEWKOWITSCH), A., i, 225; (BALBIANO), A., i, 547.

of carbamide hydrochloride (WALKER and WOOD), T., 484; P., 67.

of trisaccharides by dilute acids (WOGRINZ), A., ii, 721.

Period of induction in the reaction between carbon monoxide and chlorine (DYSON and HARDEN), T., 203.

Velocity of acetylation of some closed-chain alcohols (PANOFF), A., ii, 357.

of amino-derivatives of the naphthalene and quinoline groups (CYBULSKY), A., i, 775.

Velocity of amidification of acids, change of, with reference to their structure (MENSCHUTKIN, KRIEGER, and DITRICH), A., ii, 357.

Velocity of combination of tertiary amines with *m*- and *p*-diazo-benzenesulphonic acids (GOLD-SCHMIDT and KELLER), A., i, 135.

of ketones with potassium hydrogen sulphite (PETRENKO-KRITSCHENKO and KESTNER), A., ii, 719.

Velocity of crystallisation, relation of temperature to (BORODOWSKY), A., ii, 357.

molecular lowering of the, by the addition of foreign compounds (v. PICKARDT), A., ii, 66.

AFFINITY, CHEMICAL:—

Velocity of decomposition of ammonium nitrite (BLANCHARD), A., ii, 19.

of diazo-compounds (CAIN and NICOLL), T., 206.

influence of temperature on the (CAIN and NICOLL), T., 470; P., 63.

of diazonium salts (v. EULER), A., i, 298.

of hydrogen peroxide by iodine ions (BREDIG and WALTON), A., ii, 282.

Velocity of development of organic developers, influence of alkalis on the (GUREWITSCH), A., ii, 706.

Velocity of esterification of hydrochloric acid (VILLIERS), A., i, 732.

with the hydrazids (VILLIERS), A., i, 599, 674.

Velocity of formation of anilides and amides, influence of catalysts on the (MENSCHUTKIN), A., i, 813.

of sulphur trioxide in presence of platinum (BODLANDER and KOPPEN), A., ii, 639.

Velocity of hydrolysis of aryl and benzyl esters of dibasic acids (BISCHOFF and v. HEDENSTROM), A., i, 87.

of amygdalin and salicin by the action of emulsin (HENRI and LALOU), A., i, 643.

of dextrose and levulose (HERZOG), A., ii, 230.

of ethyl malonate (GOLDSCHMIDT and SCHOLZ), A., i, 458.

Velocity of intramolecular rearrangement of atoms in acetylphenyl-chloroamines (BLANKSMA), A., ii, 137.

Velocity of inversion, change in the, with temperature (KULLGREN), A., ii, 535.

by invertase, law of the (HENRI), A., i, 219, 304.

Velocity of oxidation by chromic acid in presence of other acids (PRUD-HOMME), A., ii, 430.

of ferrous salts by chromic acid (BENSON), A., ii, 200.

of hydrogen iodide, compensation method of determining the (BELL), A., ii, 275.

of phosphorus (RUSSELL), T., 1266, 1279; P., 207.

of potassium iodide by chromic acid (DELURY), A., ii, 471.

Velocity of decrease of radioactivity induced by radium in a closed space (CURIE), A., ii, 50, 255.

AFFINITY, CHEMICAL :—

Velocity of polyphase reactions (QUARTAROLI), A., ii, 720.

Velocity of reaction before complete equilibrium and the point of transition are reached (WILDERMAN), A., ii, 13.
between arsenious acid and iodine in acid solution: rate of the reverse reaction, and the equilibrium between them (ROEBUCK), A., ii, 14.

of bromine on ethylalcohol (BUGARSZKY), A., ii, 276.

and its nature, between bromine and oxalic acid (RICHARDS and STULL), A., ii, 15.

between carbon monoxide and oxygen (KÜHL), A., ii, 639.

of ketones with phenylhydrazine (PETRENKO-KRITSCHENKO and ELTSCHANINOFF), A., i, 441.

with phenylhydrazine, influence of the medium on the (PETRENKO-KRITSCHENKO and KONSCHIN), A., ii, 719.

of ketonic acids with phenylhydrazine (KLDIASCHWILI), A., ii, 719.

in solutions containing potassium chlorate, potassium iodide, and hydrochloric acid (BRAY), A., ii, 275.

between potassium ferricyanide and potassium iodide in neutral aqueous solution and its mechanism (DONNAN and LE ROSSIGNOL), T., 703; P., 120.

in solutions containing potassium iodide, ferrous sulphate, and chromic acid (BENSON), A., ii, 534.

between potassium permanganate and oxalic acid (EHRENFELD), A., ii, 184.

between potassium persulphate, hydrogen iodide, and phosphorous acid (FEDERLIN), A., ii, 14.

Velocity of solution of solid substances (BRUNER and TOLLOCZKO), A., ii, 470.

of metals (ERICSON-AURÉN and PALMAER), A., ii, 718.

Velocity of transformation of tribromophenol bromide into tetrabromophenol (BELZER), A., ii, 415.

of carbon monoxide (SMITS and WOLFF), A., ii, 276, 638.

of diphenyliodonium chloride and iodide (BÜCHNER), A., i, 615.

AFFINITY, CHEMICAL :—

Velocity of transformation of the two isomeric methyl-d-glucosides (JUNGIUS), A., i, 734.

of persulphuric acid into Caro's acid, and formula of the latter (MUGDAN), A., ii, 640.

Agar-agar, gelatinisation of (LEVITES), A., ii, 641.

Alanylglycylglycine (FISCHER), A., i, 799.

Albite, conditions of formation of (BAUR), A., ii, 303.

Albumen, action of seminase on (HÉRISSEY), A., ii, 170.

of palms, composition of the reserve carbohydrates of the (LIÉNARD), A., ii, 36.

Albumin, hydrolysis of (SIEGFRIED), A., i, 586.

oxidation of, by Jolles' method (ABDERHALDEN), A., i, 588, 779; (JOLLES), A., i, 723; (LANZER), A., ii, 584.

reaction of, with acids (MYLIUS), A., i, 373.

molecule, constitution of the (HOFMEISTER), A., i, 214.

estimation of, in urine (JOLLES), A., ii, 48.

Albumin, iodo-, physiological decomposition of (MOSSE and NEUBERG), A., ii, 496.

Albumins from dark coloured plant juices, preparation of (RÜMPFLER), A., i, 214.

identification of (BOES), A., i, 214.

Albuminous substances, estimation of, in blood (JOLLES), A., ii, 252.

Albumose, the precipitate produced by adding rennin to solutions of (LAWROFF and SALASKIN), A., i, 136.

Albumoses in the blood (EMBDEN and KNOOP), A., ii, 86; (LANGSTEIN), A., ii, 162.

behaviour of, in the alimentary wall (EMBDEN and KNOOP), A., ii, 86.

soluble arsenates of (KNOLL & Co.), A., ii, 543.

Alcaptonuria, the blood protoids in (ABDERHALDEN and FALTA), A., ii, 663.

Alcohol. See Ethyl alcohol.

Alcohol from olive oil (GILL and TUFTS), A., i, 557.

$C_8H_{16}O$, and its acetate, from $\alpha\theta$ -octamethylenediamine (LOEBL), A., i, 736.

$C_{12}H_{20}O_2$, from magnesium camphor and acetaldehyde (MALMGREN), A., i, 711.

$C_{14}H_{18}ON$, and its salts and benzoate, from pyrophthalone (v. HUBER A., i, 576).

Alcoholic fermentation. See under Fermentation.

Alcoholometry, use of the temperature of calefaction in (BORDIER), A., ii, 264.

Alcohols, transformation of aldehydes and ketones into, by catalytic hydrogenation (SABATIER and SENDERENS), A., i, 733.

formation of, from the reduction of esters (BOUVEAULT and BLANC), A., i, 597, 673, 730.

formation of, from the action of ethylene oxide on mixed organo-magnesium compounds (GRIGNARD), A., i, 552.

formation of, from the electrochemical reduction of ketones (ELBS and BRAND), A., i, 99.

electrolytic preparation of (MOEST), A., i, 546.

catalytic decomposition of, by finely divided metals (SABATIER and SENDERENS), A., i, 393, 453, 454.

ebullioscopic behaviour of, in benzene solutions (MAMELI), A., ii, 711.

catalytic oxidation of (TRILLARI), A., i, 222.

interaction of, with diazonium salts (HANTZSCH and VOCH), A., i, 664.

and allied substances, new reaction of certain (GAVARD), A., ii, 514.

Alcohols, aromatic, synthesis of (MANASSE), A., i, 28.

tertiary, synthesis of (MASSON), A., i, 28.

Alcohols, closed-chain, velocity of acetylation of (PANOFF), A., ii, 357.

Alcohols, fatty, latent heats of (BROWN), T., 991; P., 164.

behaviour and melting points of, at very low temperatures (CARRARA and CORPADORO), A., ii, 712.

Alcohols, monohydric, synthesis of (GUERBET), A., i, 3.

Alcohols, hexahydric, compounds of, with mononitrobenzaldehydes (SIMONET), A., i, 633.

Alcohols, polyhydric, saturated, calculation of the number of classes of, and their oxidation products (ANSCHUTZ), A., i, 3.

combination of, with aldehydes (MEUNIER), A., i, 727.

Alcohols, primary, preparation of, by means of the corresponding acids (BOUVEAULT and BLANC), A., i, 597, 673.

Alcohols, secondary, of high molecular weight, removal of water from (THOMS and MANNICH), A., i, 673.

Alcohols, s-trisubstituted, formation of (WEIGERT), A., i, 418.

Alcohols. See also Glycols.

Aldehyde. See Acetaldehyde.

Aldehyde, $C_{10}H_{16}O$, and its semicarbazone, from the oxidation of pinene (HENDERSON, GRAY, and SMITH), T., 1302; P., 196.

Aldehyde-ammonia, oxidation of (BAMBERGER and SELIGMAN), A., i, 401.

Aldehydehydrazones, nitroso-, isonitroso-, and nitro-derivatives of (BAMBERGER and PEMSEL), A., i, 283.

Aldehydophenylhydrazones, oxidation of, to α -diketoneosazones (BILTZ and SIEDEN), A., i, 120.

Aldehydes, formation of (SABATIER and SENDERENS), A., i, 393, 453, 454.

formation of, from α -glycols and from α -oxides (KRASSUSKY), A., i, 8.

isomeric transformation of the α -oxides of olefines into (MARKOWNIKOFF), A., i, 200.

preparation of, by means of pyrogenetic contact reactions (PATIEFF and LEONTOWITSCH), A., i, 598.

electrolytic preparation of (MOEST), A., i, 546.

condensation of, with acetylacetone (KNOEVENAGEL, BIALON, RUSCHHAUPT, SCHNEIDER, CRONER, and SANGER), A., i, 637.

interaction of, with acid chlorides (LEES), T., 145.

condensation of, with amines and β -naphthol (BETTI and TORICELLI), A., i, 480; (BETTI), A., i, 510.

condensation of, with aryl- ψ -thiohydantoins (WHEELER and JAMESON), A., i, 521.

condensation of, with 2,6-dimethylpyridine (WERNER), A., i, 574.

condensation of, with ethyl cyanoacetate (GUARESCHI), A., i, 736.

condensation of, with menthyl acetooacetate (HANN and LAPWORTH), P., 291.

condensation of, with 2-methylindole (FREUND and LEBACH), A., i, 278.

condensation of, with 2- and with 4-methylquinolines (LOEW), A., i, 577.

action of, on β -naphtholbenzylamine (BETTI and FOA), A., i, 511.

combination of, with polyhydric alcohols (MEUNIER), A., i, 727.

compounds of, with aromatic amines (EIBNER), A., i, 750.

condensation products of, with rhodanic acid and allied substances (ZIPSER), A., i, 273; (ANDREASCH and ZIPSER), A., i, 855.

Aldehydes, transformation of, into alcohols by catalytic hydrogenation (SABATIER and SENDERENS), A., i, 733.
 reagent for (MANGET and MARION), A., ii, 580.
 general reaction of (RIEGLER), A., ii, 457.

Aldehydes, aliphatic and aromatic, micro-chemical analysis of (BEHRENS), A., ii, 246.

Aldehydes, aromatic, intermolecular transpositions in the synthesis of, by Gattermann's method (FRANCESCONI and MUNDICI), A., i, 426.
 compounds of, with cyclopentanone (MENTZEL), A., i, 497.

Aldehydes, racemic. See Racemic.

Aldehydes. See also Aldol, and Hydroxy-aldehydes.

Aldehydic acids, micro-chemical analysis of (BEHRENS), A., ii, 246.

o-Aldehydic acids, tautomerism of the (WEGSCHEIDER), A., i, 562.

B-Aldehydic acids, optically active esters of (LAPWORTH), T., 1114; P., 149; (HANN and LAPWORTH), P., 291.

a-Aldehydocinchoric acid, oxime of, and its acetate (PFITZINGER), A., i, 53.

2-Aldehydoquinoline, oxime of, and its acetate (PFITZINGER), A., i, 53.

Aldol, $C_{13}H_{18}O_3$, from *m*-ethoxybenzaldehyde and isobutaldehyde (SUBAK), A., i, 493.

Aldoximes, formation of, by means of mercury fulminate and aluminium oxychloride (SCHOLL; SCHOLL and KAČER), A., i, 254; (SCHOLL and HILGERS), A., i, 347; (SCHOLL and KREMPER), A., i, 348.

Alfalfa, fixation of atmospheric nitrogen by, on ordinary prairie soil under various treatments (HOPKINS), A., ii, 324.

Algæ, arsenic in (GAUTIER), A., ii, 91, 92.
 fresh-water, influence of formaldehyde on the growth of some (BOUILHAC), A., ii, 232.

Alicyclic compounds, stereochemistry of (ASCHAN), A., ii, 2.

Alkali, free and combined, estimation of, in sulphite liquors (SCHWARTZ), A., ii, 104.
 estimation of, suitability of various indicators for the, in presence of nitrite and formate (WEGNER), A., ii, 453.

Alkali bromides, action of dry potassium dichromate on (DE KONINCK), A., ii, 751.

Alkali carbonates, normal and acid, behaviour of phenolphthalein towards (GIRAUD), A., ii, 543.
 the rendering caustic of (D'ANSELME), A., ii, 726.

estimation of carbon dioxide in (FOKIN), A., ii, 391.

chlorides, electrolysis of (GUYE), A., ii, 586.
 theory of the electrolysis of solutions of (FOERSTER and MÜLLER), A., ii, 350.
 double salts of, with molybdenum trichloride (CHILESSOTTI), A., ii, 731.

cyanides, preparation of, from metallic cyanogen compounds (BRITISH CYANIDES Co.), A., i, 328.
 calcium cyanamide as a starting material for the preparation of (ERLWEIN), A., i, 611.

hydrides, non-conductivity of electricity by (MOISSAN), A., ii, 349.
 influence of traces of water on the decomposition of, by acetylene (MOISSAN), A., i, 785.
 action of acetylene on (MOISSAN), A., i, 595.

metals, preparation of (CHEMISCHE FABRIK GRIESHEIM-ELEKTRON), A., ii, 646.

nitrites, preparation of (CHEMISCHE FABRIK GRÜNAU, LANDSHOFF, & MEYER), A., ii, 426.

nitroprussides, volumetric estimation of (FONZES-DIACON and CARQUET), A., ii, 617.

sulphides, electrolysis of (BROCHET and RANSON), A., ii, 477.
 bismuth thiosulphates (HAUSER), A., ii, 487.

hydrogen sulphates, decomposition of (COLSON), A., ii, 289.

Alkalimetry, use of anhydrides and chloro-anhydrides in (ODDO), A., ii, 333.

Alkaline earth carbonates, estimation of carbon dioxide in (FOKIN), A., ii, 391.
 hydrides, action of acetylene on (MOISSAN), A., i, 595.

sulphides, electrolysis of (BROCHET and RANSON), A., ii, 478.

Alkaline hydroxides, and ammonia, relative strengths of the, as measured by their action on cotarnine (DOBIE, LAUDER, and TINKLER), P., 279.

Alkalies, action of, on ss and on paraffin (JONES), A., ii, 143.
 theory of the action of halogens on (FOERSTER and MÜLLER), A., ii, 142, 350; (WINTELER), A., ii, 291.

Alkaloids, action of iodine on (FOERSTER and GYR), A., ii, 209.
 estimation of total, in soils (PETTIT), A., ii, 512.
 separation of, from manganese dioxide (BAUBIGNY), A., ii, 184.

Alkaloids of Adlumia cirrhosa (SCHLÖTERBECK and WATKINS), A., i, 512.
 of calumba root (GADAMER), A., i, 50.
 from *Casiniroa edulis* (BICKERN), A., i, 649.

Cinchona (BERTHELOT and GAUDECHON), A., i, 773; ii, 197, 270.
 the bearing of the Pasteur reaction on the constitution of the (SKRAUP), A., i, 649.
 acyl derivatives of (VEREINIGTE CHININFABRIKEN ZIMMER & Co.), A., i, 50.
 symmetrical carbonic esters of (VEREINIGTE CHININFABRIKEN ZIMMER & Co.), A., i, 513.
 salicylyl derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 513.
 indicators for the titration of (MESSNER), A., ii, 519.

of *Dicentra Cucullaria* (FISCHER and SOELL), A., i, 193.

of *Dicentra formosa* (HEYL), A., i, 716.

of *Eschscholzia californica* (FISCHER and TWEEDEN), A., i, 193.

of ipecacuanha, reactions of (ALLEN and SCOTT-SMITH), A., ii, 117.

opium (HESSE), A., i, 773.

of yohimbe bark (SIEDLER), A., i, 195.

poisonous, from a *Zygadenus* (HEYL), A., i, 650.

relation between absorption spectra and chemical constitution of (DOBIE and LAUDER), T., 605; P., 7.

action of high temperatures on, when fused with carbamide (BECKURTS and FRERICHS), A., i, 717.

influence of, on oxidation (DUPOUY), A., ii, 676.

compounds of, with hydroferrocyanic, hydroferricyanic, thiocyanic, and nitroprussic acids (GRESHOFF), A., i, 848.

double haloiods of tellurium with the (LENHER and TITUS), A., i, 774.

precipitation of some, by uranium nitrate (LOY), A., ii, 581.

estimation of, volumetrically (KIPPENBERGER), A., ii, 396.

Alkannic acid and Anchusic acid from alkanna root (GAWALOWSKI), A., i, 109.

Alkaverdin (GIES), A., ii, 569.

Alkyl bromides and iodides, action of phenylhydrazine on (ALLAIN LE-CANU), A., i, 778.

groups, practical estimation of (DECKER), A., ii, 763.

iodides, action of, on indoles (PLANCHER), A., i, 114.

Alkylation agent, methyl sulphate as an (ULLMANN), A., i, 394.

esters of *p*-toluenesulphonic acid as (ULLMANN and WENNER), A., i, 407.

Alkylation of sugars (PURDIE and IRVINE), T., 1021; P., 192; (PURDIE and BRIDGETT), T., 1037; P., 193.

Alkylaminoanthraquinones, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 498, 839.

Alkyloxides, sodium derivatives, action of carbon monoxide on (BEATTY), A., i, 726.

p-**Alkylphenols**, action of nitric acid on halogen derivatives of (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 756.

1-Alkylpyridones, action of phosphorus pentachloride on (FISCHER), A., i, 52.

Alkylisrosindulines, aryl derivatives of (CASSELLA & Co.), A., i, 866.

1-Alkylquinolones, action of phosphorus pentachloride on (FISCHER), A., i, 52.

Alkylsuccinic acids, bromo-, action of ammonia on (LUTZ), A., i, 147.

Alkylthiocarbamic acids, imino-, new synthesis of (DIXON), T., 550; P., 104.

Alkylurethanes, nitroso-, constitution of (SCHMIDT), A., i, 683.

Allantoin, behaviour of, in the organism (LUZZATO), A., ii, 563.

Allophanic acid, thio-, salts of a mercaptoid form of (DIXON), T., 550; P., 104.

Alloxuric bases, estimation of, in urine (GARNIER), A., ii, 583.

Alloys, bibliography of (SACK), A., ii, 595.

behaviour of some, in regard to the law of Wiedemann and Franz (SCHULZE), A., ii, 58.

course of the melting point lines of (VAN LAAR), A., ii, 266, 588.

estimation of vanadium in (NICOLARDOT), A., ii, 576.

Allyl alcohol, catalytic decomposition of (SABATIER and SENDERENS), A., i, 454.

bromide, action of magnesium and carbon dioxide on (HOUBEN), A., i, 789.

Allylcyanide, constitution of (LESPIEAU), A., i, 684.

Allylbenzene, dibromide and β -bromo-derivative of (HELL and BAUER), A., i, 242.

α -Allylbenzene (*propenylbenzene*) (KLAGES), A., i, 329, 688; (KUNCKELL and DETTMAR), A., i, 331; (KUNCKELL), A., i, 806.

α -chloro- β -bromo- (KUNCKELL and DETTMAR), A., i, 331.

β -Allylbenzene (KLAGES and HAHN), A., i, 19.

Allylcampnocarboxylic acid, methyl and ethyl esters (BRÜHL), A., i, 6.

C-Allylcampnocarboxylic acid, methyl ester (BRÜHL), A., i, 40; (HALLER), A., i, 503.

Allylcamphor, and its oxime, semicarbazone, and isomeric cyano-derivatives (HALLER), A., i, 503.

Allylhomocamphoric acid and its silver salt (BRÜHL), A., i, 6.

S-Allylrhodanic acid (ANDREASCH and ZIPSER), A., i, 856.

Allyltetrahydroquinoline hydriodide (WEDEKIND and OECHSLER), A., i, 116.

S-Allyldithiourethane (v. BRAUN), A., i, 14.

α -Allyl-p-xylene, and its dibromide and α -chloro- β -bromo- (KUNCKELL and DETTMAR), A., i, 331.

Almonds, application of Kreis's reaction to preparations of (CHWOLLES), A., ii, 250.

presence of sucrose in, and its rôle in the formation of the oil (VALLÉE), A., ii, 234.

Aloes from the Cape (ASCHAN), A., i, 772.

Natal, aloins of (LÉGER), A., i, 356.

Aloins, constitution of (LÉGER), A., i, 356.

Aluminium, solubility of, in nitric acid (WOY), A., ii, 483.

anode, suggested theory of the (TAYLOR and INGLIS), A., ii, 260.

Aluminium alloys with copper, thermal study of (LUGININ and SCHÜKAREFF), A., ii, 271.

Aluminium bromide, compounds of, with bromine, ethyl bromide, and carbon disulphide (PLOTNIKOFF), A., i, 137.

chloride, action of, on sulphuryl chloride (RUFF), A., ii, 149.

organic compounds which act as ferment in synthetical reactions (GUSTAVSON), A., i, 470, 804.

chlorosulphate (RECOURA), A., ii, 79.

chromate (GRÖGER), A., ii, 22.

fluoride and its hydrates (BAUD), A., ii, 150.

Aluminium hydroxide, solubility of, in ammonia and amines (RENZ), A., ii, 729.

compound of, with dextrose (CHAPMAN), P., 74.

phosphate, effect of moisture on the availability of dehydrated (MORSE), A., ii, 449.

sulphates (SCHMATOLLA), A., ii, 371.

sodium sulphate (*sodium alum*), crystalline (DUMONT), A., ii, 547.

Aluminium, electrolytic separation of, from iron or nickel (HOLLARD and BERTIAUX), A., ii, 513.

Alums, acid reaction of (LUMIÈRE and SEYEWETZ), A., ii, 150.

Alunogen from the neighbourhood of Rome (MILLOSEVICH), A., ii, 435.

Amalgams. See Mercury alloys.

Amic acids, hydrolysis of, by ferments (GONNERMANN), A., i, 590.

Amides, influence of catalysts on the formation of (MENSCHUTKIN), A., i, 813.

action of hypobromites on (LAPWORTH and NICHOLLS), P., 22.

di-o-substituted, action of anhydrous nitric acid on (MONTAGNE), A., i, 169.

substituted halogenated (FRANCESCONI and DE PLATO), A., i, 798.

acid, constitution of (SCHMIDT), A., i, 682.

action of carbonyl chloride and pyridine on (EINHORN and METTLER), A., i, 30.

secondary, preparation of (TARBOURIECH), A., i, 681, 737.

Amides, thio-, action of hydrazine hydrate on (JUNGHAHN and BUNIMOWICZ), A., i, 130.

Amidic nitrogen, use of *magnesia usta* in the estimation of (MÜLLER), A., ii, 612.

Amine-ammonia water obtained by the distillation of the concentrated waste-liquore from the desaccharification of molasses (ANDRLÍK), A., ii, 116.

Amines, formation of, from bromoamides (HANTZSCH), A., i, 29.

formation of, from oximes (BOEHINGER & SÖHNE), A., i, 550.

preparation of, by electrolytic reduction (KNUDSEN), A., i, 795.

and other ammonia derivatives, determination of the constitution of (GINZBERG), A., i, 794.

determination of the structure of, by means of Caro's persulphuric acid (BAMBERGER), A., i, 324.

freezing point curves of binary mixtures of phenols and (PHILIP), T., 814; P., 148.

Amines, action of mixed organo-magnesium compounds on (MEUNIER), A., i, 544.
 diazotisation of difficultly diazotisable (SEIDLER), A., i, 868.
 condensation of, with aldehydes and β -naphthol (BETTI and TORRICELLI), A., i, 480; (BETTI), A., i, 510.
 oxidation of, by catalytic action (TRILLAT), A., ii, 201.
 reaction between, and nitrous acid (v. EULER), A., i, 298.
 compounds of, with phosphorus (MICHAELIS), A., i, 380.
 benzoates of (DESCUDÉ), A., i, 735.
 aromatic, formation of, from nitro-compounds (KUNZ), A., i, 813.
 action of benzenesulphonic acid on (HINNSBERG), A., i, 251.
 action of chloroacetamide on (LUMIÈRE and PERRIN), A., i, 832.
 action of, on 1:5-dinitroanthraquinone (KAUFLER), A., i, 427.
 condensation of, with saligenin (PAAL), A., i, 340.
 action of sulphur chloride on (EDINGER and EKELEY), A., i, 58.
 compounds of, with aldehydes (EIBNER), A., i, 750.
 acetylated, new bases from (SILBERSTEIN), A., i, 474.
 fatty, action of, on methylene dibenzilate (DESCUDÉ), A., i, 168.
 of the type :C.NH₂, oxidation of (BAMBERGER and SELIGMAN), A., i, 322.
 of the type :CH.NH₂, oxidation of (BAMBERGER and SELIGMAN), A., i, 323.
 organic, physico-chemical constants of (SCHMIDT), A., i, 681.
 primary, test for (FENTON), T., 187.
 primary, secondary, and tertiary, action of, on *m*-xylylene bromide (HALFPAAF), A., i, 578.
 unsaturated, acetylation of (POTOZKY), A., i, 795.

Amines. See also Bases and Diamines.

Amino-acids (SØRENSEN), A., i, 833.
 discrimination between basic and acidic functions in, by means of formaldehyde (SCHIFF), A., i, 232.
 occurrence of, in rabbits' urine after phosphorus poisoning (ABDERHALDEN and BERGELL), A., ii, 742.
 degradation of, in the organism (ABDERHALDEN and BERGELL), A., ii, 666.
 ammonium salts, behaviour of, in aqueous or sugar solutions on heating (ANDRLÍK), A., i, 551.
 See also Dipeptides and Polypeptides.

γ -Amino-acids, preparation of (KÖHL), A., i, 234.
Aminoamidines of the naphthalene series, isomeric (MELDOLA, EYRE, and LANE), T., 1185; P., 205.
Amino-group, replacement of the diazo-group by the (WACKER), A., i, 132.

Ammonia, variation of the absorption coefficient of, in water by the addition of carbamide (GOLDSCHMIDT), A., ii, 638.
 aqueous solution of, vapour pressure of (PERMAN), T., 1168; P., 204.
 and the alkaline hydroxides, relative strengths of, as measured by their action on cotarnine (DOBIE, LAUDER, and TINKLER), P., 279.
 liquid, action of, on chromic chloride (LANG and CARSON), P., 147.
 action of, on phosphorus (SCHENCK), A., ii, 363; (STOCK), A., ii, 421.
 aqueous solution of (FRENZEL), A., ii, 72.
 absorption of, by distilled water and sea water (THOULET), A., ii, 360.
 action of, on boron chloride (JOANNIS), A., ii, 140.
 action of, on boron sulphide (STOCK and BLIX), A., ii, 208.
 alcoholic, action of calcium on (DOBY), A., i, 546.
 action of, on the ethyl esters of olefine-dicarboxylic and β -keto-olefine-carboxylic acids (RUHEMANN), T., 374, 717; P., 50, 128.
 action of, on formaldehyde (HENRY), A., i, 233.
 action of, on phosphorus pentasulphide (STOCK and HOFFMANN), A., ii, 207.
 oxidation of, by catalytic action (TRILLAT), A., ii, 201.
 amount of, in urine (LANDSBERG), A., ii, 442.
 compound of, with zinc chloride in the Leclanché cell (JAEGER), A., ii, 20.

Ammonia, detection and estimation of, by means of sodium picrate (REICHARD), A., ii, 754.
 detection and estimation of, in waters by means of diaminophenol (MANGER and MARION), A., ii, 390.
 estimation of, in liquids containing ammonium salts and nitrogenous compounds (BAYER), A., ii, 688.
 estimation of, by the sodium hypobromite method (WOHL), A., ii, 451.
 estimation of, in sugar beets (SELLIER), A., ii, 329.

Ammonia, estimation of, in urine (SHAFFER), A., ii, 180; (KRÜGER and REICH), A., ii, 688.
 estimation of, in urine and liquids of animal origin (FOLIN), A., ii, 239.
 estimation of, in urine, faeces, blood, etc. (SCHITTENHELM), A., ii, 688.
 estimation of, in sea water (GEEL-MUYDEN), A., ii, 578.
 estimation of, in wine (GAUTIER and HALPHEN), A., ii, 564; (LABORDE; DESMOULIÈRES), A., ii, 689; (HALPHEN), A., ii, 690.

Ammoniacal salts, complete decomposition of, by means of nascent sodium hypobromite in an alkaline medium (LE COMTE), A., ii, 518.

Ammonio-cadmium and zinc cobalticyanides (FISCHER and CUNTZE), A., i, 77.

Ammonio-copper salts. See under Copper.

Ammonio-manganic phosphate, violet (BARBIER), A., ii, 151.

Ammonio-mercury salts. See Mercuriammonium salts.

Ammonio-silver compounds. See Argentammonium under Silver.

Ammonium, position of, in the alkali series (TUTTON), T., 1049; P., 185.

Ammonium salts (REIK), A., i, 308.
 as the simplest ammonio-metallic compounds (WERNER), A., i, 234.
 action of cadmium hydroxide on (GROSSMANN), A., ii, 146.

Ammonium bromide, double salts of, with mercuric iodide (GROSSMANN), A., ii, 476.
 carbonates, double salts of, with magnesium carbonate (v. KNORRE), A., ii, 370.
 chloride, action of calcium carbide on (SALVADORI), A., i, 11.
 action of, on silicates (CLARKE and STEIGER), A., ii, 380.
 substituted, salts of, with mercurichlorides (STRÖMHLIM), A., i, 138.
 plumbic chloride (SEYEWETZ and TRAWITZ), A., ii, 371.

nickel chromate (BRIGGS), T., 392.

bismuth molybdate, ratio of bismuth to molybdenum in (MILLER and FRANK), A., ii, 761.

nitrate, solubility of, in water between 12° and 40° (MÜLLER and KAUFMANN), A., ii, 290.

nitrite, preparation of nitrogen from (v. KNORRE), A., ii, 205.

decomposition of (BLANCHARD), A., ii, 18.

Ammonium nitrite, the conditions of decomposition of (VELEY), T., 736; P., 142.

iridium nitrite (LÉIDIÉ), A., ii, 24.

sulphate, crystallised (TUTTON), T., 1049; P., 185.

compound of, with hydrogen peroxide (WILLSTÄTTER), A., ii, 537.

alum, variation of angles in the crystals of (MIERS), A., ii, 472.

thallium sulphates (MARSHALL), A., ii, 21.

persulphate, action of, on metallic oxides (SEYEWETZ and TRAWITZ), A., ii, 591.

copper, gold, and platinum polysulphides (HOFMANN and HÖCHTLEN), A., ii, 728.

Ammonium organic compounds:—

Ammonium compounds (DECKER), A., i, 516; (DECKER and ENGLER), A., i, 518; (DECKER, ELIASBERG, and WISŁOJKI), A., i, 718.
 asymmetric quaternary (WEDEKIND and OECHSLER), A., i, 517.

cyanate, equilibrium between carbamide and (FAWSITT), A., ii, 15; (WALKER), A., ii, 136.

thiocyanate and thiourea, dynamic isomerism of (REYNOLDS and WERNER), T., 1.

Ammonium-barium. See Barium-ammonium.

Ammonium-caesium and Ammonium-rubidium, preparation and properties of (MOISSAN), A., ii, 477.

Amniotic fluid (FARKAS and SCIPIADES), A., ii, 736.

Amœbæ, digestion of, and their intracellular diastase (MOUTON), A., ii, 36.

Amphibole from the Southern Urals (LOEWINSON-LESSING), A., ii, 28.

Amphibole-anthophyllite from Sweden (BECK), A., ii, 556.

Amygdalin, catalytic racemisation of (WALKER), T., 472.
 action of emulsin on (HENRI and LALOU), A., i, 643; ii, 678.

Amyl alcohol, composition of the surface layers of aqueous (BENSON), A., ii, 715.

Amyl alcohol, fermentation (KAILAN), A., i, 786.

Amyl (ethylisopropyl) nitrate, bromonitro- (SCHMIDT and AUSTIN), A., i, 597.

Amylacrylic acid. See α -Octenoic acid.

γ -Amylamine, oxidation of (BAMBERGER and SELIGMAN), A., i, 323.

isoAmylamine ferri- and ferro-cyanides (CHRÉTIEN), A., i, 155.

tert.-Amylamine, oxidation of (BAMBERGER and SELIGMAN), A., i, 322.

p-tert.-Aminylaniline, acetyl and benzoyl derivatives (ANSCHÜTZ and BECKERHOFF), A., i, 556.

2:6-dinitro- (ANSCHÜTZ and RAUFF), A., i, 556.

sec.-Amylbenzene (KLAGES and HAHN), A., i, 20.

tert.-Amylbenzene, formation of, and its nitro-derivative (ANSCHÜTZ and BECKERHOFF), A., i, 556.

isoAmylcyanacetamide (GUARESCHI), A., i, 737.

Amylene (β -methyl- $\beta\beta$ -butylene) nitro-site, nitrosate, and nitrosochloride (SCHMIDT), A., i, 597.

nitrosate, γ -bromo- (SCHMIDT and AUSTIN), A., i, 597.

Amylene (*trimethylethylene*) nitrosite (SCHMIDT), A., i, 3; (HANTZSCH), A., i, 61.

Amylene, bromo- (FROEBE and HOCHSTETTER), A., i, 320.

Amylenes, dibromides and dichlorides of, action of water on (FROEBE and HOCHSTETTER), A., i, 320.

tert.-Amylhydroxylamine (BAMBERGER and SELIGMAN), A., i, 322.

p-tert.-Amyl-o-phenylenediamine, and 6-nitro- (ANSCHÜTZ and RAUFF), A., i, 556.

Amylodextrin, iodo-compound of (SYNIEWSKI), A., i, 68.

p-tert.-Ampyphenol, formation of (ANSCHÜTZ and BECKERHOFF), A., i, 556.

decomposition of (ANSCHÜTZ and RAUFF), A., i, 555.

p-tert.-Ampyphenol, 1:2:6-triamino-, and 2:6-dinitro-, and its ammonium salt and methyl ether (ANSCHÜTZ and RAUFF), A., i, 556.

Amylpropionic acids. See Octinoic acids.

3-Amylpyrazolone (BOUVEAULT and BONGERT), A., i, 143.

Anæmia, irritability of the brain during (GIES), A., ii, 443.

Anæsthesia produced by amyrene, blood gases during (LIVON), A., ii, 306.

Analysis, by means of weak organic bases (ALLEN), A., ii, 518.

determination of the neutralisation point by conductivity (KÜSTER and GRÜTERS), A., ii, 611.

use of lead dioxide in (BOGDAN), A., ii, 576.

elementary, simplified (DENNSTEDT), A., ii, 103.

new form of gas-washing flask and absorption apparatus for (WETZEL), A., ii, 237.

Analysis, electrochemical, and the voltaic series (ROOT), A., ii, 683.

the mercury cathode in (SMITH), A., ii, 755.

gravimetric, of minute quantities of material (NERNST and RIESENFIELD), A., ii, 571.

quantitative, by means of persulphates in acid solution (DITTRICH and HASSEL), A., ii, 454.

ultimate, lead dioxide as absorbent in (DENNSTEDT and HASSSLER), A., ii, 686.

volumetric, new method of, of general applicability (ANDREWS), A., ii, 682, 686.

use of hydrogen peroxide in (SCHLOSSBERG), A., ii, 184.

preparation of normal solutions (KÜSTER & SIEDLER), A., ii, 98.

use of normal sodium oxalate in (SØRENSEN), A., ii, 684, 750.

titanium trichloride in (KNECHT), A., ii, 217; (KNECHT and HIBBERT), A., ii, 509.

See also Gasometry and Indicators.

Anapaite (*tamanite*), composition of (POPOFF), A., ii, 303; (LOCZKA), A., ii, 554.

o-Anethole, bromo-derivatives of (HELL and BAUER), A., i, 479.

Angelic acid. See Pentenoic acid.

Anhydrides, use of, in alkalimetry (ODDO), A., ii, 333.

of fatty acids, preparation of (KRESSLER), A., i, 309.

acid, fission of, by alcohols and alkyl-oxides (KAHN), A., i, 93.

mixed, of boric acid and organic acids (PICTET and GELEZNOFF), A., i, 601.

of mineral and organic acids (PICTET, GELEZNOFF, and FRIEDMANN), A., i, 309; (PICTET), A., i, 456, 675.

action of alcohols on (KAHN), A., i, 696.

nitroso-organic (FRANCESCONI and CIALDEA), A., i, 788.

Anhydro-p-aminotriphenylcarbinol (v. BAEYER, VILLIGER, and HALLENS-LEBEN), A., i, 813.

Anhydroethenyldianthranoilic acid. See 4-Keto-3-*o*-carboxyphenyl-2-methyl-quinalizoline.

Anhydroformaldehyde-*o*-anisidine (BISCHOFF and REINFELD), A., i, 248.

Anhydroformaldehyde-*m*- and -*p*-chloro-anilines and -*m*-toluidines (BISCHOFF and REINFELD), A., i, 247.

Anhydroformaldehydeurethane (BISCHOFF and REINFELD), A., i, 233; (CONRAD and HOCK), A., i, 607.

Anhydro-7-hydroxy-2:3:4-trimethyl-1:4-benzopyranol, and its salts (BÜLOW), A., i, 272.

Anhydrolariciresinol and its diacetate and dimethyl ether (HERMANN), A., i, 267.

Anhydro-*p*-methyl- and -ethyl-amino-benzyl alcohols (FRIEDLÄNDER and v. HORVATH), A., i, 253.

Anhydromethylenecitric acid, hexamethylenetetramine compound of. See Helmitol.

Anhydro-oxy methylenediphosphoric acid (POSTERNAK), A., ii, 607, 679, 680.

4:7-Anhydro-7-oxy-2-phenyl-4-(3':5') dimethoxyphenyl-1:4-benzopyranol sulphate (BÜLOW and RIESS), A., i, 715.

Anhydroquinolinephenacyloxime and its salts (IHLDER), A., i, 365.

Anhydroisoquinolinephenacyloxime and its salts (IHLDER), A., i, 365.

Anilides, influence of catalysts on the formation of (MENSCHUTKIN), A., i, 813. action of aqua regia on (VERDA), A., i, 21.

Aniline, some by-products from the manufacture of (AHRENS and BLÜMEL), A., i, 813. specific heat and latent heat of evaporation of (KURBATOFF), A., i, 246. specific heat and heat of fusion of (DE FORCRAND), A., ii, 409. products of the oxidation of, by atmospheric oxygen (ISTRATI), A., i, 82. action of, on phthalic chloride and on succinic chloride (DUNLAP and CUMMER), A., i, 699. compound of, with ammonia and nickel cyanide (HOFMANN and HÖCHTLEN), A., i, 469. magnesium phosphate, attempts to prepare (PORCHER and BRISAC), A., i, 618. sulphite, compounds of, with aldehydes (SPERONI), A., i, 246.

Aniline, alkylated derivatives, compounds of, with *s*-trinitrobenzene (HIBBERT and SUDBOROUGH), T., 1334; P., 225. benzoyl derivative (BIEHRINGER and BUSCH), A., i, 296. dibenzoyl derivative, isomeric change of, into benzoyl-*o*- and -*p*-aminobenzophenones (CHATTAWAY), P., 57. dipropionyl derivative, isomeric change of, into propionyl-*p*-aminopropiophenone (CHATTAWAY), P., 124. thioacyl derivatives (SACHS and LOEY), A., i, 335.

Aniline, bromo-derivatives, chloro-*N*-acetyl derivatives of (FRERICHS), A., i, 610.

bromonitro-derivatives (BLANKSMA), A., i, 333.

2:5-dibromo-4-nitro-, and its hydrochloride (JACKSON and CALHANE), A., i, 159.

2:3:4-triбromo-6-nitro- (JACKSON and FISKE), A., i, 690.

p-mono- and tri-bromonitroso-, acetyl derivative of (HANTZSCH and WECHSLER), A., i, 211.

p-chloro-, benzoyl and thiobenzoyl derivatives of (v. WALTHER), A., i, 583.

ω -chloro-*m*-nitro-, acetyl derivative of (JOHNSON), A., i, 581.

3:4-diiodo-, and its benzoyl derivative (BRENANS), A., i, 478.

nitro-derivatives, constitution of (HIRSCH), A., i, 623.

o-, *m*-, and *p*-nitro-, condensation of, with chloral (WHEELER and WELLER), A., i, 246.

Aniline-o-cyanophenoxyde (ANSELMINO), A., i, 367.

Aniline dyes. See under Colouring matters.

Aniline oil, analysis of, volumetrically (SCHAPOSCHNIKOFF and SACHNOWSKY), A., ii, 395.

Anilines, substituted, transition of, into compounds of the ammonium type (MENSCHUTKIN and SIMANOWSKY), A., i, 749.

N-chloro-, acetyl derivatives of, velocity of intramolecular rearrangement of atoms in (BLANKSMA), A., ii, 137.

thiocyanato-, acetyl derivatives of, molecular rearrangement of, into labile ψ -thiohydantoins, and the molecular rearrangement of the latter into stable isomerides (JOHNSON), A., i, 580.

Aniline-5-sulphonic acid, 2-chloro-3-nitro- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 665.

Anilinoacetonitrile (BADISCHE ANILIN- & SODA-FABRIK), A., i, 754. and its derivatives, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 475.

1-Anilinobenzene, 4-bromo-2:5-dinitro- (JACKSON and CALHANE), A., i, 159.

1-Anilinobenzothiazole and its bromo-derivatives (HUGERSHOFF), A., i, 865.

β -Anilino-*n*- and -*iso*-butyranilides (AUTENRIETH and PRETZELL), A., i, 474.

Anilinocrotonatebenzylideneacetoacetic acid, ethyl ester (KNOEVENAGEL, ERLER, and REINECKE), A., i, 562.

4-Anilino-1:5-diphenyldihydrotriazole, endothio-, and its nitrosoamine (BUSCH, KAMPHAUSEN, and SCHNEIDER), A., i, 533.

3-Anilino-1:5-diphenyl-1:2:4-triazole and its benzoyl derivative (WHEELER and BEARDSLEY), A., i, 294.

Anilinoglyoximedimethylmalonylic acid and *p*-chloro-, methyl ester (PERKIN), T., 1222.

3-Anilino-4-keto-2-methylquinazoline (ANSCHUTZ, SCHMIDT, and GREIFFENBERG), A., i, 58.

Anilinomalonic acid, ethyl ester, acid derivative (CURTISS), A., i, 162.

nitroso-, ethyl ester (CURTISS), A., i, 162, 754.

5-Anilino-1-methylamino-2:4:6-trinitrobenzene (BLANKSMA), A., i, 158.

6-Anilino-4-methyl-5-ethylpyrimidine, 2-amino- (BYK), A., i, 658.

1-Anilino-5-methyltriazole, and its 4-carboxylic acid, and its ethylester and silver salt (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 206.

Anilinonaphthaphenoxazole (FISCHER and HEPP), A., i, 654.

Anilinonaphthaquinonediketohydronedene (STADLER), A., i, 102.

5-Anilino-2:4:6-trinitrobenzene, 1-amino- (BLANKSMA), A., i, 158.

5-Anilino-2:4:6-trinitrophenyl methyl ether (BLANKSMA), A., i, 158.

1:5-Anilinopiperidinoanthraquinone (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 499.

β -Anilinopropionanilide and its hydrochloride (AUTENRIETH and PRETZELL), A., i, 474.

α -Anilinopropionitrile (BADISCHE ANILIN- & SODA-FABRIK), A., i, 754.

Anilinoisotriazoxoledimethylmalonylic acid, methyl ester (PERKIN) T., 1226.

Animal extracts, intravascular injection of (VINCENT and SHEEN), A., ii, 442.

fluids, estimation of fat in (KUMAGAWA and SUTO), A., ii, 702.

matters, estimation of fat in (GLIKIN), A., ii, 458.

secretions, estimation of chlorine in (STRZYZOWSKI), A., ii, 450.

tissues, influence of radium on the growth of (BOHN), A., ii, 497.

production of dextrose in (CADÉAC and MAIGNON), A., ii, 675.

phosphorus in (PERCIVAL), A., ii, 164.

Animals, presence of arsenic in (BERTRAND), A., ii, 91, 310, 604; (GAUTIER), A., ii, 91, 92, 140.

inoculated against rinderpest, detection of mercury in the flesh, and in the cheese prepared from the milk, of (OTTELLI), A., ii, 183.

aquatic, relative toxicity of distilled water, sugar solutions, and solutions of single constituents of sea water for (LOEB), A., ii, 676.

hibernating, respiratory exchange and temperature in (PEMBREY), A., ii, 305.

newly-born, the gastric juice of (COUHENIM and SOETBEER), A., ii, 438.

warm-blooded, changes in the muscles of, by deprivation of oxygen (LHOTÁK VON LHOTA), A., ii, 384.

Anisaldehydenitrophenylmethylhydrzone (BAMBERGER and PEMSEL), A., i, 286.

Anisaldehydophenylhydrazone, nitroso- (BAMBERGER and PEMSEL), A., i, 283.

Anisaldehydophenylmethylhydrazone and the action of amyl nitrite on, and its polymeride (BAMBERGER and PEMSEL), A., i, 286.

Anise oil, Chinese and Japanese (TARDY), A., i, 46.

Anisic acid, synthesis of (BODROUX), A., i, 344.

Anisic aniside (SCHNACKENBERG and SCHOLL), A., i, 341.

Anisidine, dinitro- (BLANKSMA), A., i, 624.

ρ -Anisidine, action of succinic acid on (FICI), A., i, 162.

Anisole, aldoximation of, by means of mercury fulminate and aluminium oxychloride (SCHOLL and HILGERS), A., i, 347.

Anisole, bromonitro-derivatives (JACKSON and FISKE), A., i, 688.

4-chloro-2-nitro- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 478; (REVERDIN), A., i, 556.

3:4-dichloro-6-nitro- (BLANKSMA), A., i, 334.

σ -, **m -**, and **p -nitro-**, nitration of (HOLLEMAN), A., i, 623.

s -dinitro-, nitration of (BLANKSMA), A., i, 623.

isomeric dinitro-derivatives, separation of, and their physical properties (HOLLEMAN and WILHELMY), A., i, 337.

$trinitro$ -, coloured substances from (JACKSON and EARLE), A., i, 339.

σ -Anisolediazonium chloride (v. EULER), A., i, 299.

Anisolemethylphthalimide, **o -nitro-** (TSCHERNIAC), A., i, 490.

β -Anisoyl- α -phenyl-nitrosohydrazine and α -methylhydrazine (BAMBERGER and PEMSEL), A., i, 286.

β p-Anisyl- $\alpha\alpha$ -dimethylpropionic acid, β -hydroxy-, and its salts, and ethyl ester, synthesis of (BAIDAKOWSKY), A., i, 827.

Anisylideneaniline, α -chloro- (WHEELER and JOHNSON), A., i, 693.

Anisylidene-3-methylcyclohexanone, rotation of (HALLER), A., i, 563.

α -Anisylmethylacetylene, bromo-derivatives (HELL and BAUER), A., i, 479.

Anisylquinine (VEREINIGTE CHININFABRIKEN ZIMMER & Co.), A., i, 50.

Anisylterephthalic acid (THIELE and GIESE), A., i, 425.

β -Anisylpivalic acid, β -hydroxy-. See β p-Anisyl- $\alpha\alpha$ -dimethylpropionic acid, β -hydroxy-.

Annabergite, artificial production of (DE SCHULTEN), A., ii, 655.

Anniversary dinner, P., 88.

Annual General Meeting, T., 629; P., 81.

Anodes. See Electrochemistry.

Anorthite bomb from St. Christopher, West Indies (FELS), A., ii, 557.

Antehtesterol and its bromo-derivatives (KLOBB), A., i, 165.

Anthophyllite from Saint-Germain-l'Herm (FRIEDEL), A., ii, 28.

Anthracenazine (KAUFLER), A., i, 582.

Anthracene, solubility of, in sulphur dioxide near its critical point (CENTNERSZWER and TETELOW), A., ii, 716.

Anthrachrysone, dialkyl ethers, dinitrosulphonic acid of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 840.

Anthraflavic and *iso***Anthraflavic acids**, dialkyl ethers, dinitrosulphonic acids of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 840.

Anthragalloyl, autoxidation of (BAMBERGER and PRAETORIUS), A., i, 103.

methyl ethers and their acetyl derivatives (BÖCK), A., i, 266.

Anthranil (ANSCHÜTZ and SCHMIDT), A., i, 56.

formation of, from *o*-aminobenzaldehyde (BAMBERGER and DEMUTH), A., i, 432; (BAMBERGER), A., i, 634.

constitution of (ANSCHÜTZ and SCHMIDT), A., i, 56; (BAMBERGER), A., i, 432; (SCHMIDT), A., i, 683; (HELLER), A., i, 827.

behaviour of, towards hydroxylamine and air (BAMBERGER), A., i, 84.

benzoylation of (HELLER), A., i, 827.

Anthranilic acid (*o*-aminobenzoic acid) (ANSCHÜTZ and SCHMIDT), A., i, 56.

pyrogenetic formation of, from *o*-nitrotoluene (LÖB), A., i, 29.

action of, on acetylanthranil (ANSCHÜTZ, SCHMIDT, and GREIFFENBERG), A., i, 57.

action of phosphorus pentachloride on (UHLFELDER), A., i, 671.

and its methyl derivative and their acetyl compounds, physiological action of (KLEIST), A., i, 570.

behaviour of, in the organism (HILDEBRANDT), A., ii, 228.

Anthranol, *2:3-dihydroxy-*, and its triacetyl derivative (SCHROBSDORFF), A., i, 841.

Anthraquinone, solubility of, in sulphur dioxide near its critical point (CENTNERSZWER and TETELOW), A., ii, 716.

condensation of, with phenols (SCHARWIN and KUSNEZOF), A., i, 640.

derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 564, 640.

Anthraquinone, 1-amino-4-, -5-, and -8-mono- and -4:5-dihydroxy- (WACKER), A., i, 132.

diamino-derivatives (WACKER), A., i, 132.

bromonitro- and chloronitro-derivatives (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 498.

hexa- and *octa*-chlorodihydroxy- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 500.

1:5-dinitro-, action of aromatic amines on (KAUFLER), A., i, 427.

Anthraquinonediazohydroxyamide (WACKER), A., i, 132.

Anthraquinone series, tertiary bases of the (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 498.

Anti-albumid (ROTARSKI), A., i, 667.

Antiarin, physiological action of (SELIGMANN), A., ii, 314.

Antifermen (BOURQUELOT and HÉRISSEY), A., i, 544; (KANITZ), A., ii, 661.

Antikinase, kinase, and protrypsin (DASTRE and STASSANO), A., ii, 497.

Antilaccase (GESSARD), A., ii, 316.

Antimon-luzonite (*stibio-luzonite*) (STEVENOVIC), A., ii, 301.

Antimony, atomic weight of (COHEN and STRENGERS), A., ii, 432.

quiquevalent, halogen double salts of, and their parent acids (WEINLAND and FEIGE), A., ii, 218.

Antimony, double haloids (EPHRAIM), A., ii, 552.
trichloride, compounds of, with potassium chloride (JORDIS), A., ii, 603.
pentaiodide (MACIVOR), A., ii, 154.
sulphide, and silver sulphide, fusibility of mixtures of (PÉLARON), A., ii, 544.
trisulphide, action of hydrogen on, in presence of arsenic (PÉLARON), A., ii, 422.

Antimony, titration of, in crude lead (NISSENNON and SIEDLER), A., ii, 697.
 estimation of (YOUTZ), A., ii, 513.
 estimation and separation of, by electrolysis (HOLLARD), A., ii, 455.
 electrolytic estimation of, and its separation from tin (FISCHER), A., ii, 616.
 qualitative separation of arsenic, tin, and (WALKER), T., 184.
 separation of, quantitatively, from tellurium (GUTBIER and RESENSCHEK), A., ii, 100.
 separation of, from tin (RATNER), A., ii, 109.

Antipepsin (SACHS), A., ii, 316.

Antipeptones (MÜLLER: BORKEL), A., i, 783.

Antipyrine and its constitution (KNORR and MÜLLER), A., i, 659.
 action of mercurous nitrate and of neutral mercurosomeric reagent on (MOULIN), A., i, 370.
 action of isovaleraldehyde on (ECCLES), A., i, 289.

Antipyrine, nitroso-, behaviour of, towards hydrazines (KNORR and MÜLLER), A., i, 659.

Antipyrineaminoacetamide (LUMIÈRE and PERRIN), A., i, 832.

Antiseptics, intravascular use of (SHAW), A., ii, 443.
 influence of, on tryptic digestion (KAUFMANN), A., ii, 743.

Antitoxins and toxins, applications of physical chemistry to the study of (ARRHENIUS and MADSEN), A., ii, 561.

Antityrosinase, animal (GESSARD), A., ii, 165.

Apatite from Rhenish Prussia (SACHS), A., ii, 654.

Aphthalite (VAN'T HOFF and BARSCHALL), A., ii, 434.

isoApiole, derivatives of (POND and SIEGFRIED), A., i, 417.

Apocodeine (VONGERICHTEN and MÜLLER), A., i, 571.

Apomorphine, constitution of, and its acetyl and benzoyl derivatives (PSCHORR, JAECKEL, and FECHT), A., i, 193.
 reactions for (WANGERIN), A., ii, 118.

Apophyllenic acid, formation of, from cinchomeric acid (KAAS: KIRPAL), A., i, 117.
 constitution of (KIRPAL), A., i, 852.

Apricot kernels, fatty oil in (DIETERICH), A., ii, 95.

Aqua regia, action of, on anilides and homologous derivatives (VERDA), A., i, 21.

Arabinamine and its derivatives (ROUX), A., i, 463.

Arabinose, action of hydrogen peroxide on, in presence of ferrous sulphate (MORRELL and CROFTS), T., 1285; P., 208.

d-Arabinose-l-methylhydrazine (NEUBERG), A., i, 461.

d-Arabinosimine (FISCHER and LEUCHS), A., i, 233.

Aragonite, Meigen's method of discriminating calcite and (HUTCHINSON), A., ii, 379.

Ardisiols, α - and β - (GRESHOFF and SACK), A., i, 507.

Areolinat, **Areolatol**, and **Areolin** (HESSE), A., i, 705.

Arginine picrolonate (STEUDEL), A., i, 431.

Argon, presence of, in the gas of the Borde Spring at Luchon (MOISSAN), A., ii, 209.
 presence of, in the gases of the fumerolles of Mount Pelée in Martinique (MOISSAN), A., ii, 155.
 from mineral springs in the Pyrenees (MOUREU), A., ii, 222.
 proportion of, in the vapour rising from liquid air (RAYLEIGH), A., ii, 542.
 preparation of, by means of electric sparks (BECKER), A., ii, 653.
 thermal conductivity of (SCHWARZE), A., ii, 465.

Aristolochia (*quinine carbonate*) (EICHENGRÜN), A., i, 195.

Aristol (*dithymol diiodide*), and its dibromide and dichloride (COUSIN), A., i, 166.

Arkanite (VAN'T HOFF and BARSCHALL), A., ii, 434.

Aromatic compounds, law of substitution in (FLÜRSCHHEIM), A., i, 79; (KAUFFMANN), A., ii, 401.

Arrow poisons. See Poisons.

Arsenic, native, from Montreal (EVANS), A., ii, 300.
 yellow (ERDMANN and v. UNRUH), A., ii, 73.

Arsenic, diffusion of, in nature (GARRIGOU ; GAUTIER), A., ii, 140.
 in Algae (GAUTIER), A., ii, 91, 92.
 presence of, in animals (BERTRAND), A., ii, 91, 310, 604 ; (GAUTIER), A., ii, 91.
 localisation of, in animal organs and plants (GAUTIER), A., ii, 92, 140.
 does, exist in organs ? (GAUTIER), A., ii, 676.
 distribution of, in the, and elimination of, from the organism (MOUNEYRAT), A., ii, 444.
 use of the calorimetric bomb to demonstrate the presence of, in the organism (BERTRAND), A., ii, 604.
 in hens' eggs (BERTRAND), A., ii, 499.
 in sea-water, salt deposits, table salt, mineral waters, etc. (GAUTIER), A., ii, 593, 645.
 action of, on copper (GRANGER), A., ii, 547.
 crystalline and amorphous, action of water and of dilute caustic soda on (COOKE), P., 243.
 retention of, by animal charcoal (MARSHALL and RYAN), A., ii, 540.
 retention of, by iron in the Marsh-Berzelius method (PARSONS and STEWART), A., ii, 103.
 action of, on the bone marrow of man and animals (STOCKMAN and CHARTERIS), A., ii, 501.
 organic, in therapeutics (D'EMILIO), A., ii, 252.

Arsenic pentachloride (BASKERVILLE and BENNETT), A., ii, 208.

Arsenious oxide, constitution of (ERDMANN), A., ii, 74.
 action of hydrogen sulphide on, in aqueous solution (KÜSTER and DAHMER), A., ii, 74, 364.
 estimation of, in Paris green (HAYWOOD), A., ii, 754.

Arsenates, compounds of, with selenates (WEINLAND and BARTLINGCK), A., ii, 420.

Arsenious acid (v. ZAWIDZKI), A., ii, 422.
 velocity of reaction between iodine and, in acid solution : rate of the reverse reaction and the equilibrium between them (ROEBUCK), A., ii, 14.

Arsenites (REICHARD), A., ii, 140.

Arsenious sulphide, colloidal precipitation of (KÜSTER and DAHMER), A., ii, 74, 364.

Arsenic sulphides, action of hydrogen on, in presence of antimony (PÉLABON), A., ii, 422.

Arsenic, improvement in Marsh's apparatus (GAUTIER), A., ii, 102.
 use of Caro's acid for the destruction of organic matter before testing for (TARUGI), A., ii, 240.
 purification of hydrogen sulphide to be used in the detection of (GAUTIER), A., ii, 694.
 the Gutzzeit mercuric chloride test for (GOTTHELF), A., ii, 331.
 test for, by means of stannous chloride (DE JONG), A., ii, 108.
 delicacy of tests for, in organic matter (GAUTIER), A., ii, 612.
 apparatus for the detection and estimation of minute quantities of (DOWZARD), A., ii, 41.
 and selenium, detection of, in sulphur (STEEL), A., ii, 41.
 estimation of minute quantities of (GARRIGOU), A., ii, 140 ; (GAUTIER), A., ii, 612.
 estimation of, volumetrically (KLEINE), A., ii, 694.
 electrolytic estimation of minute quantities of, especially in brewing materials (THORPE), T., 974 ; P., 183.
 estimation of, in fuel (THORPE), T., 969, 985 ; P., 182.
 estimation of, in reagents (GAUTIER), A., ii, 593, 645.
 qualitative separation of antimony, tin, and (WALKER), T., 184.

Arsenovanadiotungstic acids, complex, salts of (ROGERS), A., ii, 376.

Artinite from Val Lanterna, Lombardy (BRUGNATELLI), A., ii, 379.

a-Arylaminoanthraquinones, nitro-derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 770.

Arylhdyantoins (FRERICHS and BREUSTEDT), A., i, 16.

Aryl-mercaptides, -sulphinates, and -thiosulphonates, action of phthalic chloride on (TRÖGER and HORNUNG), A., i, 95.

Aryl- ψ -thiohydantoins, condensation of, with aldehydes (WHEELER and JAMESON), A., i, 521.

Asbolite from New Caledonia (KURNAKOFF and PODKOPAEFF), A., ii, 434.

Ascaris, fatty acids formed by (WEINLAND), A., ii, 666.

Aspergillus niger, nitrogen assimilation and proteid formation in (CZAPEK), A., ii, 35, 168.

Association. See under Affinity.

Astrakanite. See Blödite.

Asymmetry, influence of bridge-linking on (SKRAUP), A., ii, 67, 202; (JACOBSEN), A., ii, 68.

Atmospheric air, excited radioactivity and ionisation of (RUTHERFORD and ALLEN), A., ii, 123.

specific volume and heat of vaporisation of (BEHN), A., ii, 711.

apparatus for the liquefaction of (OLSZEWSKI), A., ii, 203.

liquid, influence of the prolonged action of the temperature of, on micro-organisms, and the effect of mechanical trituration at the temperature of, on photogenic bacteria (MACFADYEN), A., ii, 167.

formic acid in (HENRIET), A., i, 600.

amount of hydrogen in (LEDUC), A., ii, 68, 202, 480; (GAUTIER), A., ii, 138, 202.

amount of free hydrogen and nitrogen in (GAUTIER), A., ii, 138.

attempt to estimate the relative amounts of krypton and xenon in (RAMSAY), A., ii, 476.

influence of, on water (KOHLRAUSCH), A., ii, 125.

compressed, and oxygen, influence of, on the blood gases (HILL and MACLEOD), A., ii, 493.

influence of, on respiratory exchange (HILL and MACLEOD), A., ii, 492.

rich in carbon dioxide, influence of, on vegetation (DEMOUSSY), A., ii, 321.

from coal mines, composition of (GRÉHANT), A., ii, 70; (GUTHRIE, ATKINSON, and HAMLET), A., ii, 203.

of London, bacterial flora of (ANDREWES), A., ii, 385.

analyses of (REBUFFAT), A., ii, 99.

estimation of carbon monoxide in (SPITTA), A., ii, 452.

vitiating, estimation of carbon monoxide and dioxide in (JEAN), A., ii, 103.

estimation of carbon dioxide in, by the Walker method (WOODMAN), A., ii, 332.

estimation of formaldehyde in (ROMIJN and VOORTHUIS), A., ii, 580.

Atomic weight and specific heat (TILDEN), A., ii, 265.

of antimony (COHEN and STRENGERS), A., ii, 432.

of caesium (RICHARDS and ARCHIBALD), A., ii, 366.

of cerium (BRAUNER and BATĚK: BRAUNER), A., ii, 295.

of lanthanum (JONES), A., ii, 650.

of radium (WATTS), A., ii, 654.

of tellurium (KOTHNER), A., ii, 360; (SEUBERT), A., ii, 539.

Atomic weights, fourth report of the Committee of the German Chemical Society on (LANDOLT, OSTWALD, and SEUBERT), A., ii, 68.

report of the International Committee on, P., 2; A., ii, 473.

table of, P., 5.

calculations of (KOTHNER), A., ii, 360; (MILLS), A., ii, 472; (SEUBERT), A., ii, 539.

Atractyle and **Atractylol** (GADAMER and AMENOMIYA), A., i, 353.

Atropine, conversion of, into *d*- and *l*-hyoscyanines (AMENOMIYA), A., i, 109.

Atropinium alkyl nitrates (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 512.

Augite from Easton, Pennsylvania (PECK), A., ii, 84.

Auto-digestion. See under Digestion.

Autolysis in fish-flesh (SCHMIDT-NIELSEN), A., ii, 163.

of leucæmic spleen (SCHUMM), A., ii, 439.

of lymph glands (REH), A., ii, 439.

of the pancreas, uracil from (LEVEENE), A., ii, 438.

Auto-oxidation. See under Oxidation.

Auxochromic groups (KAUFFMANN and BEISSWENGER), A., i, 330; (KAUFFMANN), A., i, 406.

Avenine (WEISER), A., ii, 747.

Axinite, composition of (FORD), A., ii, 436.

o-**Aziminobenzoic acid**, action of alkali hydroxides on (BAMBERGER and DEMUTH), A., i, 299.

Azine, $C_21H_{14}N_4$ from 4-keto-1:3-diphenyl-pyrazolone (SACHS and BECHERESCU), A., i, 529.

p-**Azoanisole** and *p*-**azoxyanisole**, mixtures of (ROTARSKI), A., i, 869.

Azobenzene, electrolytic preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 662.

derivatives of (FREUNDLER and BÉRANGER), A., i, 202.

Azobenzene, *o*-*mono*- and *di*-chloro-(BRAND), A., i, 371.

3:2'-*dichloro-4-amino-* (v. NIEMENTOWSKI), A., i, 134.

2:3'-*dichloro-4-amino*, and its acetyl derivative (v. NIEMENTOWSKI), A., i, 134.

p-hydroxy-, and its *p*-**sulphonic acid** (LACHMAN), A., i, 294.

Azobenzoic acids, *o*-, *m*-, and *p*-, esters (MEYER and DAHLEM), A., i, 448.

Azobenzophenone (FREUNDLER), A., i, 585.

Azo-compounds, formation of (FREUDLER), A., i, 371.
 mixed, constitution of (EIBNER), A., i, 871.
Azo-compounds, amino-, preparation of mixed (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 373.
 fatty aromatic (PRAGER), A., i, 540.
 hydroxy-, alkylation of (MEYER and MAIER), A., i, 870.
Azodimethylbenzyl peroxide (FRANCESCO and MUNDICI), A., i, 426.
Azodiphenylmethane from benzene-*o*-azobenzyl alcohol (FREUNDLER), A., i, 585.
Azo-dye, C₁₉H₁₃O₂N₃, from 5-hydroxy-1-phenylbenzoxazole and diazonium chloride (HENRICH and WAGNER), A., i, 89.
Azo-dyes (v. NIEMENTOWSKI and WICHROWSKI), A., i, 133.
 dynamical experiments on the formation of (GOLDSCHMIDT and KELLER), A., i, 134.
 of the santonin series (SCHMIDT and WEDEKIND), A., i, 777.
Azoiimide (*hydrazoic acid*), reduction of (COOKE), P., 213.
9-Azophenanthrene (SCHMIDT and STROBEL), A., i, 691.
m-**Azophenol** and its diacetyl and dibenzoyl and *p*-nitro-derivatives, and the diacetyl compound of the *p*-nitro-derivative (ELBS and KIRSCH), A., i, 539.
Azosantonic acids (WEDEKIND), A., i, 542.
m-**Azoxyacetophenone** (BAMBERGER and ELMER), A., i, 561.
m-**Azoxybenzaldehyde** (ALWAY), A., i, 201.
p-**Azoxybenzaldehyde** (ALWAY), A., i, 201, 706.
p-**Azoxybenzaldoxime-N-p-formylphenyl ether (ALWAY), A., i, 706.
Azoxybenzene (LACHMAN), A., i, 294.
Azoxybenzene, *o*-dichloro- (BRAND), A., i, 371.
Azoxybenzoic acids, *m*- and *p*-, methyl esters (ALWAY and WALKER), A., i, 696.
o-, *m*-, and *p*-, esters (MEYER and DAHLEM), A., i, 448.
o-Azoxybenzyl alcohol (BAMBERGER), A., i, 417.
9-Azoxyphenanthrene (SCHMIDT and STROBEL), A., i, 691.**

B.

Babingtonite from Somerville, Mass. (PALACHE and FRAPRIE), A., ii, 491.
Bacilli, action of zinc on, in water (DIENERT), A., ii, 447.
Bacillus coli communis and *B. lactis aerogenes*, chemical products of (RETTGER), A., ii, 168.
 in ground waters (HORTON), A., ii, 455.
 diphtheria. See under Diphtheria.
oligocarbophilus and its food (BEYERINCK and VAN DELDEN), A., ii, 229.
 tubercle, from various animals, composition of (DE SCHWEINITZ and DORSET), A., ii, 504.
 fat of (KRESLING), A., ii, 504.
 typhoid, intracellular toxin of the (MACFADYEN and ROWLAND), A., ii, 168.
Bacteria, influence of the prolonged action of the temperature of liquid air on (MACFADYEN), A., ii, 167.
 assimilation of free nitrogen by (BEYERINCK and VAN DELDEN), A., ii, 34; (v. FREUDENREICH; GERLACH and VOGEL), A., ii, 744.
 decomposition of vegetable foods by (KÖNIG, SPIECKERMANN, and OLIG), A., ii, 386, 447.
 decomposition of proteids by (TAYLOR), A., ii, 169; (EMMERLING), A., ii, 229.
 decomposition of yeast nucleic acid by (SCHITTENHELM and SCHRÖTER), A., ii, 679.
 influence of, on the decomposition of bone (STOKLASA, DUCHÁČEK, and PITRA), A., ii, 169.
 influence of the viscid exudation from tubetic joints on (SELIGMANN), A., ii, 387.
 producing "ropiness" and slime in milk (KÖNIG, SPIECKERMANN, and TILLMANS), A., ii, 169.
 aerobic, decomposition of cellulose by (VAN ITERSON), A., ii, 503.
 nitrifying (OMELIANSKY), A., ii, 34; (BOUILLANGER and MASSOL), A., ii, 679.
 oxidising, and their action on alcohol and glycerol (SAZERAC), A., ii, 606.
 photogenic, effect of mechanical trituration at the temperature of liquid air on (MACFADYEN), A., ii, 167.
 See also Micro-organisms.
Bacterial flora of London air (ANDREWES), A., ii, 385.
Bacteriolytic action, factors in (WALKER), A., ii, 316.

Balance sheet of the Chemical Society, and of the Research Fund. See Annual General Meeting, T., 635.

Balsam, gurjun (TSCHIRCH and WEIL), A., i, 771.

Mecca (HIRSCHSOHN), A., i, 355.

Peru, antibacterial properties of (PIORKOWSKI), A., ii, 320.

Barbitac acid (HESSE), A., i, 702.

Barium compounds, heat of formation of (GUNTZ), A., ii, 410.

sub-salts of (GUNTZ), A., ii, 369.

Barium carbonyl (GUNTZ and MENTREL), A., ii, 546.

vanadium fluoride (EPHRAIM), A., ii, 487.

hydroxide, hydrates of (BAUER), A., ii, 426.

potassium nitrate (WALLBRIDGE), A., ii, 646.

nitride (GUNTZ), A., ii, 410; (GUNTZ and MENTREL), A., ii, 546.

peroxide, iodometry of (RUPP), A., ii, 42.

silicates (JORDIS and KANTER), A., ii, 476, 542, 595.

sulphate, the phenomena of adhesion and of solution in the precipitation of (PATTEN), A., ii, 272.

bismuth thiosulphate (HAUSER), A., ii, 488.

sulphide, electrolysis of, with a diaphragm (BROCHET and RANSON), A., ii, 478.

Barium, simultaneous estimation and separation of strontium, calcium, and (ROBIN), A., ii, 613.

Bariumamide (MENTREL), A., ii, 77; (GUNTZ), A., ii, 410; (GUNTZ and MENTREL), A., ii, 546.

Barium-ammonium (MENTREL), A., ii, 77.

Barley, carbohydrates of, and their transformations during the course of germination (LINDET), A., ii, 606.

manuring of, with potassium and sodium chlorides (DOLL), A., ii, 174.

Base from pentamethylenediamine and formaldehyde (BISCHOFF and REINFELD), A., i, 233.

$C_4H_{11}N$, and its salts, from Para cress (GERBER), A., ii, 609.

$C_6H_{10}N_2$ from the action of potassium hydroxide on aminoacetone (GABRIEL and COLMAN), A., i, 18.

$C_6H_{15}ON$, and its salts, from the reduction of cyclohexaneiso-oxime (WALLACH), A., i, 104.

$C_7H_{15}N$ and $C_7H_{17}ON$ from the reduction of β -methylcyclohexanone- α -iso-oxime (WALLACH and JÄGER), A., i, 104.

Base $C_7H_{17}ON$, from the reduction of suberoneiso-oxime (WALLACH and VAN BEECK-VOLLENHOVEN), A., i, 105.

$C_9H_{17}O_3N$, from the reduction of ω -nitroacetophenone-*o*-carboxylic acid (GABRIEL), A., i, 345.

$C_{10}H_{19}O_2N$, and its benzoyl derivative and hydrochloride, from dihydrocarvoxide (SEMMLER), A., i, 353.

$C_{10}H_{21}N$, and its benzoyl derivative and methiodide, from thujamenthoneiso-oxime (WALLACH), A., i, 103.

$C_{10}H_{21}N$, from the reduction of the base $C_{20}H_{35}NCl$ (WALLACH and JÄGER), A., i, 104.

$C_{11}H_{23}N$, from dihydro- β -campholene-trimethylammonium hydroxide (BOUVEAULT and BLANC), A., i, 613.

$C_{12}H_{23}N$ from α -camphylamine (BOUVEAULT and BLANC), A., i, 613.

$C_{14}H_{19}O_2N_3$, from the decomposition of $C_{22}H_{29}ON_5$ (PRAGER), A., i, 540.

$C_{14}H_{24}ON_2$, and its aurichloride from suberoneiso-oxime (WALLACH and VAN BEECK-VOLLENHOVEN), A., i, 105.

$C_{17}H_{16}N_2$, and its di- and tri-acetyl derivatives, from *o*-nitrobenzyl- β -naphthylamine (DARIER and MANASSEWITCH), A., i, 83.

$C_{18}H_{19}O_2N$, from chlorocodide (VONGERICHTEN and MULLER), A., i, 571.

$C_{20}H_{17}N$, and its salts, and dinitro-derivative, obtained in the preparation of α -stilbazole (LADENBURG), A., i, 275.

$C_{20}H_{40}N_2$, from the reduction of the base $C_{20}H_{35}NCl$ (WALLACH and JÄGER), A., i, 105.

$C_{22}H_{29}ON_5$, from diazobenzene and ethyl diethylaminocrotonate (PRAGER), A., i, 540.

Bases, new, from acetylated aromatic amines (SILBERSTEIN), A., i, 474.

from the reduction of β -methylcyclohexanone- β -oxime (WALLACH and JÄGER), A., i, 104.

in Scottish shale oil (GARRETT and SMYTHE), T., 763; P., 164.

affinities of some feeble (WOOD), T., 568; P., 67.

action of chloroacetic acids on (REITZENSTEIN), A., i, 435.

action of 1-chloro-2:4-dinitrobenzene on (REITZENSTEIN), A., i, 815.

aliphatic, formaldehyde derivatives of (BISCHOFF and REINFELD), A., i, 233.

Bases, aromatic, preparation of acyl derivatives of (LIEBREICH), A., i, 473.
 formaldehyde derivatives of (BISCHOFF and REINFELD), A., i, 247.
 practical modification of the technical "baking" method of preparing sulphonic acids of (JUNGHAHN), A., i, 473.
 organic, action of iodine bromide on (MOUNEYRAT), A., i, 665.
 action of, on the ethyl esters of olefinedicarboxylic and β -keto-olefinecarboxylic acids (RUHEMANN), T., 374, 717; P., 50, 128.
 combination of, with di-*o*-substituted benzoic acids (SUDBROUGH and ROBERTS), P., 286.
 See also Amines, and Diamines.

Basic slag. See Slag, basic.

Basidiomycetes, presence of an erepsin in (DELEZENNE and MOUTON), A., ii, 448.
 presence of a kinase in (DELEZENNE), A., ii, 229.

Bauxite deposits of Georgia (WATSON), A., ii, 83.

Bay tree, California. See *Umbellularia californica*.

Bear, polar, bile of the (HAMMARSTEN), A., ii, 86.

Bearing metals, analysis of (WALTERS and AFFELDER), A., ii, 614.

Beckman rearrangement (STIEGLITZ, HIGBEE, and HESSE), A., i, 235; (SLOSSON), A., i, 475.

Beech oil (HAENSEL), A., i, 187.

Beer, detection of fluorine in (WINDISCH), A., ii, 40.
 detection of saccharin in (BOUCHER and DE BOUNGE), A., ii, 517.

Bees, feeding experiments on (v. RAUMER), A., ii, 32.

Bees' wax, evaluation of (BERG), A., ii, 702, 767; (DIETERICH), A., ii, 767.

Beet juice, action of lime on certain nitrogenous substances in (SELLIER), A., ii, 749.

Beetroot (sugar), betasterol from (RÜMPFER), A., i, 214, 418.
 course of absorption of phosphoric acid in (GRÉGOIRE), A., ii, 749.
 intramolecular respiration of the (STOKLASA, JELINEK, and VITEK), A., ii, 746.
 estimation of ammonia in (SELLIER), A., ii, 329.

Beetroot leaves, drying (LEHMANN and CREYDT), A., ii, 507.

Beetroot root, respiration of (STROHMER), A., ii, 566.
 seed, manurial experiments with (BRIEM), A., ii, 749.

Beljiabienic acid. *Beljiabietic acid* and its salts, *Beljiabietinolic acids* and *Beljoresen* (TSCHIRCH and KORITSCHONER), A., i, 106.

Benz- See also Benzo-, Benzoyl-, and under the parent Substance.

Benzaldehyde, action of, on ethyl benzoylacetate (RUHEMANN), T., 720; P., 128.
 condensation of benzoylacetone with (KNOEVENAGEL and ERLER), A., i, 636.
 condensation of, with hydroxy-acids (MAYRHOFER and NEMETH), A., i, 344.
 condensation of, with phenoxyacetone (STOERMER and WEHLN), A., i, 40.
 condensation products of, with α -pyridyl methyl ketone (C. and A. ENGLER), A., i, 113.
 compounds of, with aniline sulphite (SPERONI), A., i, 247.

Benzaldehyde, *o*-amino-, and its acetyl derivative, and their 5-nitro-derivatives and oximes (COHN and SPRINGER), A., i, 492.
 oxidation of, and its relation to benzoxazole (BAMBERGER), A., i, 634.
 oxidation of, to anthranil (BAMBERGER and DEMUTH), A., i, 432; (BAMBERGER), A., i, 634.
m-amino-, acetyl derivative, and its oxime (FRIEDLÄNDER & FRITSCH), A., i, 346.
p-amino-, and its acetyl derivative, and its oxime, phenylhydrazone and 3-nitro-derivative (COHN and SPRINGER), A., i, 492.
 indogenide of (NOELTING), A., i, 199.
p-hydroxylamino- (ALWAY), A., i, 706.
iso-o-hydroxylamino- (BAMBERGER and DEMUTH), A., i, 432.
 nitro-, action of sodium hydroxide on (SELIGMAN), A., i, 425.
o-nitro-, condensation products of, with α -pyridyl methyl ketone (C. and A. ENGLER), A., i, 113.
m- and *p*-nitro-, reduction of (ALWAY and WELSH), A., i, 263.
 compounds of, with hexahydric alcohols (SIMONET), A., i, 633.
p-nitro-, action of, on ethyl phenyl-azoacetacetate (PRAGER), A., i, 540.
 reduction of (ALWAY), A., i, 425.
op-dinitro-, condensation of (FRIEDLÄNDER and COHN), A., i, 264,

Benzaldehyde, 2:4:6-trinitro-, anils, oximes, and phenylhydrazones of (SACHS and EVERDING), A., i, 425.
 6-nitro-3-amino-, and its *N*-acetyl derivative and their phenylhydrazones (FRIEDLANDER and FRITSCH), A., i, 347.
m-nitroso-, preparation of (ALWAY), A., i, 425, 706.
m- and *p*-nitroso-, relations between physical properties and molecular weights of (ALWAY and BONNER), A., i, 764.

Benzaldehyde-dialkylsemicarbazones (BUSCH and FREY), A., i, 537.

Benzaldehyde-*p*-nitrophenylhydrazone and nitroso- (BAMBERGER and PEMSEL), A., i, 285.

Benzaldehydophenylhydrazone, behaviour of nitrous acid and amyl nitrite towards (BAMBERGER and PEMSEL), A., i, 285.

Benzaldehydophenylhydrazone-*N*-carboxylic chloride (BUSCH and WALTER), A., i, 522.

Benzaldehydophenylmethylhydrazone, *m*-nitro- (BAMBERGER and PEMSEL), A., i, 286.

Benzaldehyde-2-mono- and -2:4-di-phenylsemicarbazones (BUSCH and WALTER), A., i, 522.

Benzaldoxime, anti, silver and mercury compounds of (FRANCESCONI and PIAZZA), A., i, 835.
o-hydroxylamino-, behaviour of, towards hydroxylamine and air (BAMBERGER), A., i, 84.

Benzaldoxime, dinitroamino- (SACHS and EVERDING), A., i, 426.

Benzaldoxime-*N*-*m*- and *p*-formylphenyl ethers, *m*- and *p*-nitro- (ALWAY), A., i, 706.

Benzamide, *m*-aminothio, action of hydrazine hydrate on (JUNGHAHN and BUNIMOWICZ), A., i, 130.
o-amino-*N*-thio- (BOGERT, BREEMAN, and HAND), A., i, 527.
 2:4:6-trichloro-3-nitro- and 2:4:6-trinitro-, and the action of anhydrous nitric acid on (MONTAGNE), A., i, 169.

Benzamidine, action of, on ethyl benzylideneacetacetate, and on ethyl benzylidenemalonate (RUHEMANN), T., 374; P., 50.
 action of, on ethyl benzylidenebenzoylacetate, and on its *m*-nitro-derivative, on ethyl *m*-nitrobenzylideneacetacetate, and on ethyl *m*-nitrobenzylidenemalonate (RUHEMANN), T., 719; P., 128.

Benzamidine, action of, on olefinic β -diketones (RUHEMANN), T., 1371; P., 246.

Benzene in Grosny naphtha (MARKOWNIKOFF), A., i, 19.
 ring-system of (KAUFFMANN), A., i, 19; (KAUFFMANN and BEISSWENGER), A., i, 330.

chemical dynamics of the reactions between chlorine and, under the influence of different catalytic agents and of light (SLATOR), T., 729; P., 135.
 and carbon tetrachloride, vapour pressures and boiling points of mixtures of (YOUNG and FORTEY), T., 60.
 and toluene, vapour pressures and boiling points of mixtures of (YOUNG and FORTEY), T., 58.

action of phenoxyacetic chloride on (STOERMER and ATENSTADT), A., i, 41.

compounds of, with ammonia and nickel cyanide (HOFMANN and HOCHTLEN), A., i, 469.

derivatives, isomeric change in (ORTON), T., 796; P., 161.

estimation of, in illuminating gas (DENNIS and O'NEILL), A., ii, 514.

Benzene haloids, influence of nitro-groups on the reactivity of (LAPWORTH), P., 23.
 condensation of, with phthalic anhydride (GRAEBE, THÉVENAZ, and KNEELAND), A., i, 345.

dihaloid derivatives, and compounds of, with magnesium (BODROUX), A., i, 592.

halogen-nitro-derivatives, action of dipropylamine on (PERNA), A., i, 406.

vicinal tribromo-, nitro-derivatives of (JACKSON and FISKE), A., i, 688.
 biomoiodoso-, fluoride (WEINLAND and STILLE), A., i, 748.

dibromodinitro-derivatives (JACKSON and CALHANE), A., i, 159.

chloro-, and carbon tetrachloride, action of sodium on (SCHMIDLIN), A., i, 687.

hexachloro-, preparation of (v. BOLTON), A., ii, 365.

***o*-chloronitro-**, action of alkalis and alcohols on (BRAND), A., i, 371, 743.
o- and *p*-chloronitro-, separation of (MARCKWALD), A., i, 471.

1-chloro-2:4-dinitro-, action of, on bases (REITZENSTEIN), A., i, 815.

5-chloro-1:2-dinitro-, derivatives of (BLANKSMA), A., i, 158.

Benzene 1:2-dichloro-4:5-dinitro-, and its derivatives (BLANKSMA), A., i, 333.
 1:2:3:5-tetrachloro-4:6-dinitro- (JACKSON and CARLTON), A., i, 79.
 3:4-diiodo-1-nitro- (BRENANS), A., i, 478.
 nitro-, molecular rise of boiling point for (BACHMANN and DZIEWONSKI), A., ii, 354; (BILTZ), A., ii, 411.
 latent heat of vaporisation of (LUGININ), A., ii, 7.
 reduction of (GINTL), A., i, 242.
 trinitro-, coloured substances from (JACKSON and EARLE), A., i, 339.
 s-trinitro-, additive compounds of, with substituted anilines and naphthylamines (HIBBERT and SUDBOROUGH), T., 1334; P., 225.
 m-nitronitroso- (ALWAY), A., i, 690.
Benzenes, ethylated, formation of (KLAGES and KEIL), A., i, 553.
Benzeneazo-p-acetylaminobenzoylpyruvic acid, ethyl ester (BÜLOW and NOTTBOHM), A., i, 863.
Benzeneazo-anis- and -benz-aldoximes and their benzoyl derivatives (BAMBERGER and PEMSEL), A., i, 283.
Benzeneazo-p-benzaldehyde and its oxime (FREUNDLER and DE LABORDE RIE), A., i, 202.
Benzeneazobenzaldoxime (BAMBERGER), A., i, 285.
 nitro- derivatives of (BAMBERGER and PEMSEL), A., i, 284, 286.
Benzene-o-azobenzyl alcohol and its transformations into phenylindazole and azodiphenylmethane (FREUNDLER), A., i, 585.
Benzeneazobenzylidenenitronic acid, methyl ester (BAMBERGER), A., i, 285.
Benzeneazocinnamic acid and its amide and esters (FREUNDLER and DE LABORDE RIE), A., i, 203.
Benzeneazodesmotroposantoin, o-nitro-, (SCHMIDT and WEDEKIND), A., i, 777.
Benzeneazo-3:4-dicarboxy-N-dimethyl-pyrrolyl-p-benzoylpyruvic acid, ethyl ester (BÜLOW and NOTTBOHM), A., i, 275.
Benzeneazodimethoxybenzoylacetophenone (BÜLOW and RIESS), A., i, 101.
Benzeneazo-2:4-dimethylpyrrole, and its phenylcarbamide (PLANCHER and SONCINI), A., i, 449.
Benzeneazoformazyl (BAMBERGER and PEMSEL), A., i, 283.
Benzeneazo-5-hydroxy-1-methylbenzoxazole (HENRICH and WAGNER), A., i, 89.
Benzeneazo-β-naphthol, 2:4:6-tribromo- and 2:4-dichloro- (ORTON), T., 808; P., 162.
 o- and m-chloro-, and o- and p-hydroxy- (v. NIEMENTOWSKI), A., i, 133.
Benzeneazo-o-, m-, and -p-nitrobenzaldoximes (BAMBERGER and PEMSEL), A., i, 284.
Benzeneazo-α-nitro-α-phenylethane, p-nitro- (BAMBERGER and SELIGMAN), A., i, 324.
Benzeneazo-2-phenylindole (PLANCHER and SONCINI), A., i, 450.
Benzeneazo-1-phenyl-3-methyl-5-pyrazolone, 4-bromo- and 4-chloro- (LAWORTH), T., 1124; P., 149.
Benzeneazo-5-phenyl-2-methylpyrrole (PLANCHER and SONCINI), A., i, 449.
Benzeneazosalicylic acid, o-nitro- (ELBS and KEIPER), A., i, 662.
Benzeneazo-o-toluidine, p-nitro- (AKTIEN-GESELLSCHAFT FÜR ANILINFABRIKATION), A., i, 373.
Benzeneazo- See also Phenylazo-
Benzene-α-benzotriazine, o-hydroxy- (FICHTER and FRÖHLICH), A., i, 723.
Benzenediazoaminophenyl p-tolyl sulphide, and p-nitro- (v. MEYER and HEIDUSCHKA), A., i, 809.
Benzenediazonium. See Diazonium.
Benzene ring, new synthesis of the (FICHTER and GRETHER), A., i, 481.
 replacement of bromine by chlorine in the (EIBNER), A., i, 471.
 influence of the CH₃ group on substitution in the (BLANKSMA), A., i, 164.
Benzenesulphinic acid, action of, on aromatic amines and phenols (HINSBERG), A., i, 251.
Benzenesulphonamide, o-amino-, and its acetyl, methyl and carbamide derivatives (EKBOM), A., i, 411.
Benzenesulphonic acid, m-nitro-, reduction of (ELBS and WOHLFAHRT), A., i, 212.
 o- and p-nitro-, electrolytic reduction of (ELBS and WOHLFAHRT), A., i, 80; (WOHLFAHRT), A., i, 203.
 amide, and chloride, 3:5-dinitro- (JACKSON and EARLE), A., i, 407.
Benzenesulphonic peroxide (WEINLAND and LEWKOWITZ), A., i, 808.
Benzenesulphonylcarbamide, benzoyl derivative (BILLETER), A., i, 821.
Benzenesulphonylcarbimide (BILLETER), A., i, 484.
Benzhydrol, behaviour of, when heated in presence of copper powder (KNOVENAGEL and HECKEL), A., i, 820.

Benzhydrol, behaviour of, when heated alone and in presence of spongy palladium (KNOEVENAGEL and HECKEL), A., i, 819.

Benzhydrylamine, oxidation of (BAMBERGER and SELIGMAN), A., i, 323.

1-Benzhydryl-3:5-dimethylpyrazole (DARAPSKY), A., i, 368.

Benzhydrylhrazine and its salts, diacyl, and nitroso-derivatives (DARAPSKY), A., i, 367, 368.

1-Benzhydryl-3-methyl-5-pyrazolone and its 4-benzylidene and 4-isonitroso-derivatives (DARAPSKY), A., i, 368.

Benzhydryl-4-phenylsemithiocarbazide and -semicarbazide (DARAPSKY), A., i, 368.

1-Benzhydryl-4-p-tolylhydrazone-3-methylpyrazolone (DARAPSKY), A., i, 368.

Benzidine, formation and estimation of (VAN LOON), A., i, 249. reactions of (SAGET), A., i, 49. use of, for the estimation of sulphuric acid (RASCHIG), A., ii, 572, 691; (MÜLLER), A., ii, 691; (MÜLLER and DÜRKES), A., i, 751.

Benzidine, 2:2'-diamino-, and its tetra-acetyl derivative (ELBS and WOHLFAHRT), A., i, 212.

o-dichloro- (BRAND), A., i, 371.

3:3'-dichloro-, diazonium salt, action of heat on (CAIN), T., 690; P., 136.

2:2'-dihydroxy- and its 5-amino- and tetra-acetyl derivatives (ELBS and KIRSCH), A., i, 539.

Benzidine-blue (SAGET), A., i, 49.

Benzidine-2:2'-disulphonic acid and its diacetyl derivative (ELBS and WOHLFAHRT), A., i, 212.

Benzil, condensation of, with resorcinol (v. LIEBIG), A., i, 828; (v. LIEBIG and HURT), A., i, 829.

Benzil, tetrabromo- and tetrachloro-*di*-*p*-hydroxy-, and their diacetates (ZINCKE and FRIES), A., i, 183.

Benzilide (EINHORN and METTLER), A., i, 29.

Benzil-*p*-nitro-osazone and its diacetyl derivative and **phenylhydrazone** (BILTZ and WEISS), A., i, 59.

Benzilmonosemicarbazone (DIELS and VOM DORP), A., i, 882.

Benziminoazoles, bromination of (BACZYŃSKI and v. NIEMENTOWSKI), A., i, 124.

Benzimino-methyl and -ethyl ethers, *o*-chloro- (LANDER and JEWSON), T., 767; P., 160.

Benz-. See also Benz-, Benzoyl-, and under the parent Substance.

Benzo-benzyl-, -isobutyl-, and -propyl-amides (DESCUDÉ), A., i, 168.

Benzo-benzyl- and -ethyl-amides, imide chlorides of (LANDER), T., 320; P., 15.

Benzobenzyl-methyl- and -ethyl-amides (LANDER), T., 408; P., 46.

Benzodimethylamide, 2:4:6-trichloro-3-nitro- and 2:4:6-trinitro-, and the action of anhydrous nitric acid on (MONTAGNE), A., i, 109.

Benzoic acid, preparation of (BASLER CHEMISCHE FABRIK), A., i, 487, 561.

Benzoic acid, ethyl ester, action of phenylhydrazine on (BAIDAKOWSKY and SLEPAKA), A., i, 441.

menthyl ester, and its rotation (RUPE, LOTZ, and SILBERBERG), A., i, 566.

methylene ester, action of amines on (DESCUDÉ), A., i, 168, 735.

action of ammonia on (DESCUDÉ), A., i, 72.

Benzoic acid, *o*-amino-. See Anthranilic acid.

m- and *p*-amino-, action of phosphorus pentachloride on (MICHAELIS and v. AREND), A., i, 390; (UHLFELDER), A., i, 671.

o-, *m*-, and *p*-amino-, behaviour of, in the organism (HILDEBRANDT), A., ii, 228.

p-amino-, and its acyl derivatives, and *p*-nitro-, β -naphthyl esters (REVERDIN and CRÉPIEUX), A., i, 29.

2:4-diamino-, and its diacetyl derivative (ULLMANN and UZBACHIAN) A., i, 626.

m-amino-*p*-hydroxy-, methyl ester ("orthoform neu"), and its salts and compounds (EINHORN and RUPPERT), A., i, 257.

bromo-, nitro- and hydroxy-derivatives of, acid salts of, and the effect of water and alcohol on them (FARMER), T., 1442; P., 274.

isomeric mono- and *di*-chloro-, menthyl esters, rotation of (COHEN and BRIGGS), T., 1213; P., 207.

2-, 4-, and 6-chloro-3-amino-, and their acetyl derivatives (BAMBERGER and DE WERRA), A., i, 21; (BAMBERGER, TER-SARKISSJANZ, and DE WERRA), A., i, 25.

2:4:6-trichloro-3-nitro- and 2:4:6-trinitro- (MONTAGNE), A., i, 169.

2-hydroxy-. See Salicylic acid.

3-hydroxy, bromo-derivatives of, and their esters (COPPADORO), A., i, 257.

***p*-hydroxy-**, bromo-derivatives of (COMANDUCCI and MARCELLO), A., i, 485.

2:4-dihydroxy-. See β -Resorcylic acid.

3:4-dihydroxy-. See Protocatechic acid.

3:5-dihydroxy-. See α -Resorcylic acid.

Benzoic acid, *o*-hydroxylamino-, ethyl ester (BAMBERGER and PYMAN), A., i, 822.

4:6-dinitro-2-nitroso- (SACHS and EVERDING), A., i, 426.

o-nitroso-(CIAMICIAN and SILBER), A., i, 40.

ethyl ester (ALWAY and WALKER), A., i, 696; (BAMBERGER and PYMAN), A., i, 822.

o-, *m*- and *p*-nitroso-, esters (ALWAY and WALKER), A., i, 696.

6-nitroso-3-amino-, *N*-acetyl derivative of (FRIEDLÄNDER and FRITSCH), A., i, 347.

thiol-, phenyl and α -naphthyl esters (TABOURY), A., i, 748.

Benzoic acids, di-*o*-substituted, formation of salts of, with organic bases (SUDBOROUGH and ROBERTS), P., 286.

Perbenzoic acid (CLOVER and RICHMOND), A., i, 397.

Benzoinic acetic peroxide, and its hydrolysis (CLOVER and RICHMOND), A., i, 397.

chloride, action of zinc on (NORRIS and FRANKLIN), A., i, 341.

2:4:6-trichloro-3-nitro- (MONTAGNE), A., i, 169.

cyanide, *o*- and *p*-chloro- and *p*-nitro- (ZIMMERMANN), A., i, 93.

mesitylcarboxylic anhydride (KAHN), A., i, 696.

p-nitrobenzoic anhydride (KAHN), A., i, 696.

disulphide (v. BRAUN and RUMPF), A., i, 620.

Benzoin, behaviour of, at high temperatures and in presence of catalytic agents (KNOEVENAGEL and TOMASZEWSKI), A., i, 837.

Benzomethylamide, *o*-chloro- (LANDER and JEWSON), T., 768; P., 160.

p-nitro- (BLANKSMA), A., i, 333.

2:4:6-trichloro-3-nitro-, and 2:4:6-trinitro-, and the action of anhydrous nitric acid on (MONTAGNE), A., i, 169.

Benzonitrile, *o*-nitro- and *o*-amino- and its acyl derivatives (BOGERT and HAND), A., i, 292.

p-amino-, and its acetyl and propionyl derivatives (BOGERT and KOHN-STAMM), A., i, 559.

Benzophenone, action of sodium on (ACREE), A., i, 724.

phosphorus acid derivatives of (MARIE), A., i, 379.

Benzophenone, *o*-amino-, and its derivatives (ULLMANN and BLEIER), A., i, 176.

Benzophenone, *o*- and *p*-amino-, benzoyl derivatives of, from dibenzanilide (CHATTAWAY), P., 57.

bromo-, chloro-, and acyl derivatives of (CHATTAWAY), P., 106.

m-nitro-, electrochemical reduction of (ELBS and WOGRINZ), A., i, 635.

Benzophenonebenzhydrylhydrazone and its acetyl and nitroso-derivatives (DARAPSKY), A., i, 369.

o-**Benzoquinone**. See *o*-Quinone.

Benzothiazole, 1-amino- (HUGERSHOFF), A., i, 865, 866.

Benzo- and *p*-tolyl-methyl- and -ethyl-amides (LANDER), T., 408; P., 46.

Benzotriazoles, preparation of (ELBS and KEIPER), A., i, 662.

Benzotriazole-2-salicylic acid (ELBS and KEIPER), A., i, 662.

Benzotrichloride, pyrogenetic decomposition of, by the electric current (LÖB), A., i, 806.

Benzoxazole and its compound with mercuric chloride (BAMBERGER), A., i, 634.

Benzoxy-. See Benzoyloxy-.

Benzoyl-. See also Benz-, Benzo-, and under the parent Substance.

4-Benzoylacenaphthene and its oxime and phenylhydrazone (GRAEBE and HAAS), A., i, 409.

Benzoylacetic acid, ethyl ester, action of benzaldehyde and *m*-nitrobenzaldehyde on (RUHEMANN), T., 720; P., 128.

Benzoylacetoacetic acid, ethyl ester, condensation product of, with resorcinol (BÜLOW), A., i, 272.

Benzoylacetone, condensation of, with benzaldehyde (KNOEVENAGEL and ERLER), A., i, 636.

action of *m*-nitrobenzaldehyde on (RUHEMANN), T., 1376; P., 246.

compound of, with antimony pentachloride (ROSENHEIM, LOEWENSTAMM, and SINGER), A., i, 604.

compounds of, with silicon chloride (DILTHEY), A., i, 591.

m-hydroxyanilide and its semicarbazone (BÜLOW and ISSLER), A., i, 718.

Benzoylacetone, thio-, and its metallic derivatives (VAILLANT), A., i, 639.

Benzoylacetoneamine and its compound with benzylidenebenzoylacetone (KNOEVENAGEL, ERLER, and REINECKE), A., i, 652.

Benzoylacetonebenzylideneacetocetonic acid, ethyl ester (KNOEVENAGEL and ERLER), A., i, 637.

a-Benzoylacetophenoneoxime, *p*-*a*-di-nitro-, and its acetyl derivative (WIELAND), A., i, 767.

Benzoylacetylcarbamide (BILLETER), A., i, 800.

4-Benzoyl-2 acetyl-1:3-diphenylcyclohexenone-5, and its 5-oxime (KNOEVENAGEL and ERLER), A., i, 637.

5-Benzoyl-3-acetyl-4-methylpyrazole (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 210.

o-Benzoylamino-benzamide, -benzanilide, and -benzoylphenylhydrazide (ANSCHUTZ, SCHMIDT, and GREIFFENBERG), A., i, 58.

Benzoylaminio. See also under the parent Substance.

Benzoylanisanilide (WHEELER and JOHNSON), A., i, 693.

Benzoylanthesterol (KLOBB), A., i, 165.

Benzoylanthranilic acid, *o*-amino-, *N*-acetyl derivative of (ANSCHUTZ, SCHMIDT, and GREIFFENBERG), A., i, 57.

4-Benzoylaziminole-5 carboxylic acid (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 207.

Benzoylbenzanilide, *p*-bromo- and *m*-nitro- (WHEELER and JOHNSON), A., i, 693.

p-Benzoylbenzenediazoniumazide (HANTZSCH), A., i, 664.

Benzoylbenzidine (BIEHRINGER and BUSCH), A., i, 296.

Benzoylbenzyl- ψ -thiocarbamide (WHEELER and BEARDSLEY), A., i, 293.

Benzoylcamphecarboxylic acid, ethyl ester (BRUHL), A., i, 65.

Benzoylcamporph, constitution of enolic, and its methyl and benzyl ethers (FORSTER), T., 98.

Benzoylcarbamic acid, hydroxyethyl ester (BILLETER), A., i, 821.

Benzoylcarbimide (BILLETER), A., i, 484, 821.

β -Benzoyldi-butyrin, -chlorohydrin and -stearin (GUTH), A., i, 227.

Benzoyldiphenyldihydropyrimidone (RUHEMANN), T., 722; P., 128.

2:3-Benzoylene-4:5-phthalyl-1-phenyl-pyrrole (STADLER), A., i, 102.

3-(or 4-)Benzoylfluorene and its oxime and phenylhydrazone (FORTNER), A., i, 177.

3-(or 4-)Benzoylfluorenone and its oximes and phenylhydrazones (FORTNER), A., i, 177.

Benzoylformic acid, *o*-hydroxy-, hydration of (FRITSCH), A., i, 174.

Benzoyl-hydrazobenzene and -*p*-hydratzotoluene (BIEHRINGER and BUSCH), A., i, 296.

Benzoyl-*o*-hydrazotoluene (FREUNDLER), A., i, 663.

a'-Benzoyl- α -iodocamphor (FORSTER and JENKINSON), T., 537.

4-Benzoyl-5-methylaziminole and its silver salt (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 207.

1-Benzoyl-2-methylcoumarone, 4-amino-, and its acetyl derivative, and the oxime of the acetyl compound (KUNCKELL and KESSELER), A., i, 509.

4:5-Benzoylmethylene-3:6-diphenyl-4:5-dihydropyridazine (PAAL and SCHULZE), A., i, 710.

5-Benzoyl-4-methylpyrazole-3-carboxylic acid and its ethyl ester and sodium salt (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 209.

Benzoylmethylthiodiazole and its mercurichloride and semicarbazones (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 207.

4-Benzoylnaphthalene-1:8:2'-tricarboxylic acid, and its anhydride, and imide (GRAEBE and PERUTZ), A., i, 409.

4-Benzoylnaphthalic acid and anhydride and oxime (GRAEBE and HAAS), A., i, 409.

α -Benzoylnitrocampahors, and their *m*-nitro-derivatives (FORSTER and JENKINSON), T., 537.

Benzoylisotrosocamphor and its isomeride (FORSTER), T., 533; P., 97.

1-Benzoyloxycamphe, formation of (LEES), T., 145.

β -Benzoyloxy- β -methyl- and β -phenyl-acrylic acids, α -cyano-, esters (SCHMITT), A., i, 399.

Benzoyloxyolefines, formation of (LEES), T., 145.

5-Benzoyloxy-1-phenylbenzoxazole (HENRICH and WAGNER), A., i, 88.

Benzoylphenyldimethyl- ψ -thiocarbamide (WHEELER and BEARDSLEY), A., i, 294.

2-Benzoyl-5-phenylglyoxaline and its 1-sulphonic acid and its salts (PINNER), A., i, 123.

4-Benzoyl-1-phenyl-3-methylpyrazole, and its 5-amino-, 5-anilino-, 5-dipropylamino-, and 5-chloro-derivatives (MICHAELIS and BENDER), A., i, 288.

2-Benzoyl-3-phenylcyclopentanone-4-carboxylic acid, methyl ester (STOBBE), A., i, 421.

2-Benzoyl-3-phenylcyclopentanone-4-carboxylic acid, methyl ester, and its oxime, semicarbazone, and phenylpyrazole (STOBBE and WERDERMANN), A., i, 423.

Benzoylphenyldithiocarbazinic acid, methyl ester, phenylhydrazone (BUSCH, KAMPHAUSEN, and SCHNEIDER), A., i, 533.

Benzoylphenylurethane (WHEELER and JOHNSON), A., i, 693.

β -Benzoylpropan- $\alpha\gamma$ -diol. See Dimethylolacetophenone.

β -Benzoylpropionic acid, formation of, from α -hydroxyphenylbutyrolactone (ERLENMEYER), A., i, 32.

and its oximes (MAYRHOFER and NEMETH), A., i, 344.

5-Benzoylpromazole-3:4-dicarboxylic acid (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 210.

Benzoylpyruvic acid, α -amino-, acetyl derivative, and its ethyl ester, and its oxime (BÜLOW and NOTTBOHM), A., i, 863.

N-Benzoylserine, ethyl ester (ERLENMEYER), A., i, 29.

Benzoyltartaric acid, m -nitro-, ethyl ester, preparation and rotation of (FRANKLAND, HEATHCOTE, and GREEN), T., 168.

Benzoyl- ψ -thiocarbamides, action of phenylhydrazine on (WHEELER and BEARDSLEY), A., i, 293.

Benzoyl-p-tolyldithiocarbazinic acid, methyl ester (BUSCH and BLUME), A., i, 535.

Benzyl alcohol, catalytic decomposition of (SABATIER and SENDERENS), A., i, 454.

Benzyl alcohol, amino-derivatives, condensations with (FRIEDLÄNDER and V. HORVATH), A., i, 252.

tetrachloro- p -hydroxy-, methyl and ethyl ethers and acetate of (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 758.

c -hydroxy-. See Saligenin.

o -hydroxylamino- (BAMBERGER), A., i, 417.

o -nitro-, reduction of (FREUNDLER), A., i, 371.

o -nitroso- (BAMBERGER), A., i, 417.

Benzyl carbonate. See Dibenzyl carbonate.

chloride, pyrogenetic decomposition of, by the electric current (LÖB), A., i, 806.

nitration of (ALWAY), A., i, 242.

p -nitro-, action of, on acetoacetic and cyanoacetic esters and their derivatives (ROMEO), A., i, 280.

cyanide. See Phenylacetonitrile.

haloids, hydroxy-, and their chloro- and nitro-derivatives from negatively substituted phenols (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 338.

methyl iminodithiocarbonate hydr- iodide (DELÉPINE), A., i, 237.

Benzyl-aniline, - p -bromoaniline, and - o - and - p -chloroanilines, o -hydroxy-, and their acetates (PAAL), A., i, 340.

Benzylaniline, bromonitro- and nitro- derivatives (BLANKSMA), A., i, 334.

chloro- N -acetyl-derivative (FRERICHS), A., i, 610.

p -nitro-, action of alkali sulphides on (ALWAY and WALKER), A., i, 753.

Benzyl- p -anisidine, o -hydroxy- (HANTZSCH and WECHSLER), A., i, 211.

Benzyl- α - and - p -anisidines, o -hydroxy-, and their acetates (PAAL), A., i, 340.

Benzylbenzimide chloride (LEY and HOLZWEISSIG), A., i, 282.

N-Benzylbenzimino-ethers (LANDER), T., 326; P., 16.

oxidation of, by atmospheric air (LANDER), T., 328; P., 16.

Benzylcamphor, bromination of (HALLER and MINGUIN), A., i, 267.

Benzyl- ψ -cumidine, o -hydroxy-, and its acetate (PAAL), A., i, 340.

Benzyldeoxybenzoin, α - α -dichloro- (KLAGES and TETZNER), A., i, 101.

Benzyl derivatives containing sulphur, and their decomposition (FROMM and ACHERT), A., i, 340.

Benzylethydisulphonemethane (POSNER and HAZARD), A., i, 243.

Benzyl ethyl ketone, cyano- (*propionylbenzyl cyanide*), preparation and reactions of (DIMROTH and FEUCHTER), A., i, 629.

3-(or 4-)Benzylfluorene (FORTNER), A., i, 177.

Benzylformazyl (VOSWINCKEL), A., i, 778.

Benzylidene chloride, pyrogenetic decomposition of, by the electric current, (LÖB), A., i, 806.

Benzylideneacetooacetic acid, ethyl ester, action of benzamidine on (RUHEMANN), T., 374, 719; P., 50, 128.

Benzylideneacetone, hydroxy-, and its acetate (ZINCKE and MÜHLHAUSEN), A., i, 265.

Benzylideneacetophenone, action of nitrous fumes on (WIELAND), A., i, 765.

action of phenylmagnesium bromide on (KOHLER), A., i, 483.

condensation of, with propiophenone (ABELL), T., 360; P., 17.

nitronitrite (WIELAND), A., i, 766.

Benzylideneacetophenone, α -nitro- (WIELAND), A., i, 767, 836.

m -nitro- (RUHEMANN), T., 1377; P., 246.

β - p -dinitro- (WIELAND), A., i, 767.

Benzylideneacetylacetone, and *m*-nitro-, and the action of benzamidine on (RUHEMANN), T., 1373; P., 246.

5-Benzylidene-3-allylrhodanic acid and *o*-hydroxy- and *o*-nitro- (ANDREASCH and ZIPSER), A., i, 856.

Benzylideneaminoacetone, and the action of acids on (RUHEMANN), T., 378; P., 50.

Benzylideneaniline, *α*-chloro-*p*-bromo-, preparation of (WHEELER and JOHNSON), A., i, 693.

Benzylideneanilineacetoacetic acid, ethyl ester, preparation of (MORRELL and BELLARS), T., 1292; P., 209. ethyl esters, isomeric (RABE), A., i, 62; (SCHIFF; BILTZ), A., i, 172; (FRANCOIS), A., i, 411. methyl esters, isomeric (TAYLOR), A., i, 412.

Benzylidene-*p*-anisidine, *o*-hydroxy- (HANTZSCH and WECHSLER), A., i, 211.

Benzylideneearabinamine (ROUX), A., i, 463.

Benzylidenebenzhydrylhydrazone (DARAPSKY), A., i, 368.

Benzylidenebenzoylacetic acid, ethyl ester, and *m*-nitro-, preparation of, and action of benzamidine on (RUHEMANN), T., 720; P., 128.

Benzylidenebenzoylacetone (KNOEVENAGEL and ERLER), A., i, 637. compound of, with benzamidine, and its *m*-nitro-derivative (RUHEMANN), T., 1376; P., 246. pyridine derivatives from (KNOEVENAGEL, ERLER, and REINECKE), A., i, 652.

Benzylidenebenzyl cyanide, condensation of, with hydrogen cyanide (LAWORTH), T., 998; P., 189.

Benzylidenebisacetocetic acid, ethyl ester, action of phenylhydrazine on (KNOEVENAGEL and HEEREN), A., i, 660. and *m*-nitro-, ethylesters (RUHEMANN), T., 717, 1372; P., 128.

Benzylidenebisbenzoylacetone (RUHEMANN), T., 1376; P., 246.

Benzylidenebisbenzoylacetones, *α*- and *β*- (KNOEVENAGEL and ERLER), A., i, 637.

d-Benzylideneecamphor and its haloid derivatives (HALLER and MINGUIN), A., i, 267; (MINGUIN), A., i, 428.

Benzylideneecoumaranone, *o*-nitro- (STOERMER and ATENSTÄDT), A., i, 41.

Benzylidenedeoxybenzoin, *m*-nitro-, hydrochloride (RUHEMANN), T., 1378; P., 247.

Benzylidenedeoxybenzoins, isomeric, and their *o*-chloro-derivatives and phenylhydrazone (KLAGES and TETZNER), A., i, 100.

Benzylidenedimalonic acid, ethyl ester (KOTZ and STALMANN), A., i, 741.

Benzylidene-*p*-dimethylaminophenyl-*ψ*-thiohydantoin, *p*-nitro- (WHEELER and JAMIESON), A., i, 522.

Benzylidenedimethyl-*α*-pyridyl ketone and its salts (C. and A. ENGLER), A., i, 113.

Benzylidene-dioxothiazole, -rhodanic acid, and -thiohydantoin, *o*-hydroxy-, and their acetyl derivatives (ZIPSER), A., i, 273.

Benzylidene-2:5-diphenylsemicarbazide (BUSCH and WALTER), A., i, 523.

5-Benzylidenediphenylthiohydantoin, *o*-hydroxy- (ANDREASCH and ZIPSER), A., i, 857.

Benzylidene-dulcitol, -mannitol, and -sorbitol, nitro-derivatives of (SIMONET), A., i, 633.

Benzylidenegalactamine (ROUX), A., i, 73.

Benzylideneindigotin (HELLER and MICHEL), A., i, 835.

Benzylidenelepidine. See 4-Styrylquinoline.

Benzylidenemalonic acid, ethyl ester, action of benzamidine on (RUHEMANN), T., 374; P., 50. *m*-nitro-, ethyl ester, and the action of benzamidine on (RUHEMANN), T., 723; P., 129.

2-Benzylidene-methylbenziminoazole, 4:6-*di*- and *tetra*-bromo- (BACZYŃSKI and V. NIEMENTOWSKI), A., i, 126.

Benzylidene-3-methylcyclohexanone, rotation of (HALLER), A., i, 563.

Benzylidenenaphthylamine, *o*- and *m*-nitro- (HAASE), A., i, 367.

Benzylidenenitrosobenzhydrylhydrazine, and *o*-hydroxy- (DARAPSKY), A., i, 367.

Benzylidene-phenoxyacetone and its oxime, phenylhydrazone, and semicarbazone (STOERMER and WEHLN), A., i, 40. *o*-hydroxy-, and its semicarbazone (STOERMER and WEHLN), A., i, 41.

Benzylidene-phenylhydrazine, *dinitro*- and nitro-*α*-nitroso-derivatives (BAMBERGER and PEMSEL), A., i, 284.

Benzylidene-propiophenone, condensation of, with acetophenone (ABELL), T., 360; P., 17.

Benzylidenequinaldine. See 2-Styrylquinoline.

Benzylidene-*p*-toluidine, *m*- and *p*-nitro- (ULLMANN and WEINTRAUB), A., i, 520.

***α*-Benzylmethylacetic acid**, resolution of (KIPPING and HUNTER), T., 1005.

Benzyl methyl ketone semicarbazone (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 205.

Benzyl- α - and - β -naphthylamines, *p*-amino-, and their triacetyl derivatives (DARIER and MANNASSE-WITCH), A., i, 83.

o-, *m*-, and *p*-nitro-, and their acetyl derivatives (DARIER and MANNASSE-WITCH), A., i, 82.

Benzyl-*p*-nitroaniline, nitroamino-, action of acetic anhydride and sulphuric acid on (STILLICH), A., i, 864.

Benzyl-*p*-phenetidine, *o*-hydroxy-, and its acetyl derivative (PAAL), A., i, 340.

Benzylphenoxyacetone (STOERMER and WEHLEN), A., i, 41.

Benzylphosphinic acid, hydroxy-, and its dimethyl ester, benzoate, and silver salt (MARIE), A., i, 220.

Benzylphthalimides and hydroxy-, preparation of (TSCHERNIAC), A., i, 490.

Benzylphthalimomalonic acid, ethyl ester (SÖRENSEN), A., i, 834.

3-Benzylpiperidine and its platinichloride (TSCHITSCHIBABIN), A., i, 853.

N-Benzyl-S-propylthiourethane (v. BRAUN), A., i, 15.

3-Benzylpyridine, formation of, by Ladenburg's reaction (TSCHITSCHIBABIN), A., i, 853.

Benzylquinoline chloride and *d*-camphorsulphonate (REYCHLER), A., i, 366.

3-Benzylisoquinoline and its salts (RÜGHEIMER), A., i, 775.

4-Benzylisoquinoline derivatives (RÜGHEIMER and ALBRECHT; RÜGHEIMER and SCHAUMANN), A., i, 439.

homologues of (RÜGHEIMER and ALBRECHT), A., i, 439.

methiodide and ethiodide (RÜGHEIMER and SCHAUMANN), A., i, 439.

4-Benzylisoquinoline and its salts, *p*-amino-, and *m*-nitro-*p*-amino- and their acetyl derivatives, and *p*-nitro- (RÜGHEIMER and FRILING), A., i, 438.

p-hydroxy-, and its platinichloride (RÜGHEIMER and ALBRECHT), A., i, 439.

dinitro- (RÜGHEIMER and FRILING; RÜGHEIMER and ALBRECHT), A., i, 439.

Benzylselenolacriderol and *op*-*dinitro*, and their salts (EDINGER and RITSEMA), A., i, 720.

2-Benzyltetrahydroisoquinoline and its oxalate and 2-acetic acid, ethyl ester, iodide of (WEDEKIND and OECHSLER), A., i, 517.

5-Benzylthiolacridol, nitro-derivatives, and their salts (EDINGER and RITSEMA), A., i, 720.

***α*-Benzylthiocinnamylacrylic acid** (ZIPSER), A., i, 274.

***α*-Benzylthiolhydroxypropionic acid** (POSNER and HAZARD), A., i, 243.

S-Benzylidithiourethane (v. BRAUN), A., i, 14.

2-Benzyl-*m*-tolylenediamine (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 584.

Benzyl-*αs*-xylidine, *o*-hydroxy-, and its acetate (PAAL), A., i, 340.

Berberine from *Cetidionium majus* and from *Stylophorum diphyllum* (SCHLÖTTERBECK), A., i, 193.

relation between the absorption spectra and chemical structure of, corydaline, and other alkaloids (DOBBIE and LAUDER), T., 605; P., 7.

Bergamot oil (SCHIMMEL & Co.), A., i, 186.

Berthierite from Bräunsdorf, Saxony (LOCZKA), A., ii, 434.

Beryllium. See Glucinum.

Betaine, study of (STANĚK), A., i, 796.

physiological action of (ANDRLÍK, VELICH, and STANĚK), A., ii, 228.

Betaines, formation of (REITZENSTEIN), A., i, 435.

method of preparation of (MEYER), A., i, 364.

Betasterol from beet-root (RÜMPFER), A., i, 214, 418.

Bile, action of acid and of chloral on the secretion of (WERTHEIMER), A., ii, 441.

ox-, new colouring matter from (LOEBISCH and FISCHLER), A., i, 713.

deoxycholic and cholic acids from (PREGGL), A., i, 318.

of the Polar bear (HAMMARSTEN), A., ii, 186.

Bile pigment, modification of Huppert's test for (NAKAYAMA), A., ii, 120.

Bilianic and isoBilianic acids (PREGGL), A., i, 318.

Bilipurpurin (LOEBISCH and FISCHLER), A., i, 713.

Biochemical theories (SPIEGEL), A., ii, 307.

Bioses, glucoside formation from (FOERG), A., i, 713.

Biotite in the "protogine" of the Aar Massive, Switzerland (KONIGSBERGER), A., ii, 558.

Birds, formation of uric acid in (MILROY), A., ii, 672.

Bisanhydroacetylanthranilic acid and its salts and esters (ANSCHUTZ and SCHMIDT), A., i, 56.

Bisanhydroaminobenzaldehyde (FREUNDLER), A., i, 371.

Bisdiaczoacetic acid, ethyl ester, and its sodium salt (BETTI), A., i, 79.

Bisdiaczoanthraquinones, conversion of, into amino-derivatives (WACKER), A., i, 132.

Bisdiazodiphenyldisulphonic acid (ELES and WOHLFAHRT), A., i, 213.

Bisdinaphthapyryl (FOSSE), A., i, 49, 357.

Bisdioxymethyleneindigotin, tetra-chloro- (HAYDUCK), A., i, 827.

Bisditolyloxyisopropyl phosphites (BOYD), T., 1139; P., 202.

Bis-p-methylbenzylidene- $\alpha\alpha$ -lutidine. See 2:6-Di-p-methylstyrylpypyridine.

Bismuth, radioactive (GIESEL), A., ii, 299, 603.

radioactive constituents of, from Joachimsthal pitchblende (MARCKWALD), A., ii, 81, 733.

crystallised, thermal conductivity of (PERROT), A., ii, 466.

thermomagnetic and related properties of (LOWNDS), A., ii, 264.

Bismuth alloys with lead and tin (SHEPHERD), A., ii, 77, 196.

Bismuth salts, crystalline (DE SCHULTEN), A., ii, 653.

Bismuth arsenate and phosphate (DE SCHULTEN), A., ii, 653.

haloids, compounds of, with pyridine and with quinoline (MONTEMARTINI), A., i, 111.

ammonium molybdate, ratio of bismuth to molybdenum in (MILLER and FRANK), A., ii, 761.

oxide, hydrated, action of, on isomerides of gallic acid (THIBAULT), A., i, 701.

peroxide, electrolytic (HOLLARD), A., ii, 294.

alkali thiosulphates (HAUSER), A., ii, 487.

barium thiosulphate (HAUSER), A., ii, 488.

Bismuth cobalticyanides (FISCHER and CUNTZE), A., i, 76.

Bismuth, estimation of, electrolytically, and its separation from other metals (KAMMERER), A., ii, 246.

Bismuth, estimation of, iodometrically, by chromate (RUPP and SCHAUMANN), A., ii, 110.

estimation of, volumetrically, as molybdate, and its separation from copper (RIEDERER), A., ii, 762.

Bismuthogalic acid, constitution and derivatives of (THIBAULT), A., i, 633.

Bismuthopyrogallocarboxylic acid and its salts (THIBAULT), A., i, 701.

Bismuthotannic acid and its aniline and sodium salts (THIBAULT), A., i, 761.

Bisnaphthaketocoumaran (RUHEMANN), T., 1133; P., 202.

Bisnaphthalonyl, reduction of (RUHEMANN), T., 1133; P., 202.

Bis- β -naphthylthiophthalide (TRÖGER and HORNUNG), A., i, 95.

Bisphenylpropylpyrazolone (BOUVEAULT and BONGERT), A., i, 144.

Bisphenyl-sulphone- and -thio-phthalides (TROGER and HORNUNG), A., i, 95.

Bis-p-tolylsulphonephthalide (TROGER and HORNUNG), A., i, 95.

Bistrimethylene nitrosate, decompositions of (SCHMIDT and AUSTIN), A., i, 2.

Bitters, analysis of (SANGLE-FERRIÈRE and CUNIASSE), A., ii, 337.

Bitumens, estimation of sulphur in (v. KONEK), A., ii, 572.

Biuret reaction (SCHAER), A., ii, 344.

Biurets, ψ -dithio- (JOHNSON, BRISTOL, CRAMER, and ELMER), A., i, 751.

Blast furnace, chemical equilibrium in the (SCHENCK and ZIMMERMANN), A., ii, 423.

dust, analysis of (SCHNEIDER), A., ii, 189.

Bleaching powder, formation of (FOERSTER and MULLER), A., ii, 142; (WINTERL), A., ii, 145, 291.

action of a solution of, on metals (WHITE), A., ii, 296.

analysis of (VANINO), A., ii, 104.

Blende, estimation of zinc in (SMITH), A., ii, 334.

Blödite, identity of, with simonyite (JAEGER), A., ii, 489.

higher limit of temperature of formation of (VAN'T HOFF and JUST; VAN'T HOFF and MEYERHOFFER), A., ii, 555.

See also Simonyite.

Blood, influence of high altitudes on (v. SCHROETTER and ZUNTZ; ABDERHALDEN), A., ii, 161.

influence of high pressure of oxygen on the circulation of the (HILL and MACLEOD), A., ii, 30.

Blood, influence of chemical combination of an element on the rapidity of its passage into the (MOUNEYRAT), A., ii, 438.
 nature and determination of the alkalinity of the (LABBÉ), A., ii, 663.
 influence of alkalis on the alkalinity of the (WEISS), A., ii, 493.
 increase in the coagulability of, by an admixture with lymph (WRIGHT), A., ii, 87.
 coagulated, extraction of carbon monoxide from (NICLOUX), A., ii, 241.
 influence of formaldehyde on coagulation and laking of (GUTHRIE), A., ii, 493.
 coagulation of, in Invertebrates (DUCESCHI), A., ii, 162.
 normal and laked, difference of potential between (STEWART), A., ii, 559.
 laked, action of (LANGENDORFF), A., ii, 736.
 difference of potential between serum and (STEWART), A., ii, 559.
 action of hydrogen peroxide on (VILLE and MOITESSIER), A., ii, 120, 737.
 influence of alkaloids on the oxidation of (DUPOUY), A., ii, 676.
 action of pancreatic lipase in presence of (DOYON and MOREL), A., ii, 660.
 antitryptic action of the (GLAESNER), A., ii, 493.
 albumoses in the (EMBDEN and KNOOP), A., ii, 86; (LANGSTEIN), A., ii, 162.
 enzyme of the, which decomposes hydrogen peroxide (SENTER), A., ii, 661.
 extracts of (VINCENT and CRAMER), A., ii, 673.
 glycerol in the (NICLOUX), A., ii, 438, 560, 660; (DOYON and MOREL), A., ii, 661.
 glycuronic acid in the (LÉPINE and BOULUP), A., ii, 493.
 formation of sugar in the, as it passes through the lung (LÉPINE and BOULUP), A., ii, 736.
 sugar in the, after liver ablation (PAVY and SIAU), A., ii, 494.
 after administration of adrenaline (VOSBURGH and RICHARDS), A., ii, 307.
 of isolated animals and of fishes, carbon monoxide in the (NICLOUX), A., ii, 162.
 fishes', action of ricin on (FRAENKEL), A., ii, 663.
 in carbon monoxide poisoning, disappearance of carbon monoxide from the (GARNIER), A., ii, 560.

Blood, biological test for (GRAHAM-SMITH and SANGER), A., ii, 520.
 toxicological detection of (KÜSTER), A., ii, 252.
 estimation of albuminous substances in (JOLLES), A., ii, 252.
 estimation of ammonia in (SCHITTENHELM), A., ii, 688.
 estimation of glycerol in (NICLOUX), A., ii, 337.
 estimation of urea in (BARCROFT), A., ii, 343.

Blood changes in epilepsy (PUGH), A., ii, 307.
 after haemorrhage (BAUMANN), A., ii, 306.

Blood corpuscles, action of acids and acid salts on (PESKIND), A., ii, 31, 306.
 destruction of, in liver and spleen (BAIN), A., ii, 493.
 nucleated, red, behaviour of, towards haemolytic agents (STEWART), A., ii, 31.
 red, the laking of (GUTHRIE), A., ii, 306; (KOEPPE), A., ii, 736.
 permeability of, by anions of sodium salts (HAMBURGER and VAN LIER), A., ii, 87.

Blood gases, changes occurring in the, on the summit of Monte Rosa (MOSSO and MARRO), A., ii, 735.
 composition of, at different barometric pressures (MOSSO and MARRO), A., ii, 735.
 influence of compressed air and oxygen on (HILL and MACLEOD), A., ii, 493.
 influence of ethyl chloride, croton-chloral, and chloralose on (LIVON), A., ii, 161.
 during anaesthesia produced by amyline (LIVON), A., ii, 306.

Blood serum, influence of, on alcoholic fermentation (HARDEN), A., ii, 319.
 molecular concentration of, in pregnancy (FARKAS and SCIPIADES), A., ii, 736.
 concentration of hydroxyl ions in (FARKAS), A., ii, 736.
 human, bacteriolytic complements of (LONGCOPE), A., ii, 307.

Blood stains, detection of (SCHAER), A., ii, 344.

Blood-vessels, action of camphor on (WINTERBERG), A., ii, 307.
 action of chloroform on (SCHÄFER and SCHARLIEB), A., ii, 437.

Bobierrite, artificial production of (DE SCHULTEN), A., ii, 655.

Boiling points, relation between, and the molecular heat of solidification (DE FORCRAND), A., ii, 267, 353, 466.
 freezing points, and solubility, relation between (WILDERMAN), A., ii, 267.
 and vapour pressures of mixed liquids (YOUNG and FORTHEY), T., 45 ; (YOUNG), T., 68.
 molecular rise of, for nitrobenzene (BACHMANN and DZIEWOŃSKI), A., ii, 354 ; (BILTZ), A., ii, 411.
 and variations in the boiling points, per mm. pressure, of organic substances (LUGININ), A., ii, 7.
 methods of determining (ODDO), A., ii, 60.
 of solid and liquid substances, determination of, in the Weinhold vacuum vessel (ERDMANN and v. UNRUH), A., ii, 59.
 of carbon compounds in relation to molecular weight and formula (HENRY), A., ii, 18.
 of copper and zinc (FÉRY), A., ii, 293.
 of pure nitrogen at low pressures (FISCHER and ALT), A., ii, 72.
Boiling point curves of the system : sulphur, chlorine (ROOZEBOOM), A., ii, 634.
Bone, influence of Bacteria on the decomposition position of (STOKLASA, DUCHÁČEK, and PITRA) A., ii, 169.
 fluorine in (JODLBAUER), A., ii, 311.
Bone charcoal, estimation of calcium sulphide in (RÖSSING), A., ii, 105.
Bone marrow of man and animals, action of arsenic on (STOCKMAN and CHARTERIS), A., ii, 501.
Boothite from Leona Heights, Alameda Co., California (SCHALLER), A., ii, 490.
Borates from Argentina (BUTTGENBACH), A., ii, 157.
Borneol, preparation of (SCHINDELMEISER), A., i, 267.
 sulphur derivatives (WUYTS), A., i, 429.
Bornylene (KONDAKOFF), A., i, 505.
Boron chloride, action of ammonia on (JOANNIS), A., ii, 140.
 trichloride, action of, on phenylhydrazine (ESCALES and KLING), A., i, 120.
Boric anhydride, fused, behaviour of metallic oxides towards (BURGESS and HOLT), P., 221.
Boric acid, solubility of, in acids (HERZ), A., ii, 288.
 solubility of, in water, influence of foreign substances on the (BOGDAN), A., ii, 532.
 potassium fluoride, and hydrofluoric acid, interaction of (ABEGG, FOX, and HERZ), A., ii, 540.
Boric acid, mixed anhydrides of, with organic acids (PICTET, GELEZNOFF, and FRIEDMANN), A., i, 309 ; (PICTET and GELEZNOFF), A., i, 601 ; (PICTET), A., i, 675.
 physiological action of (HOFMANN), A., ii, 317.
 new colour reactions with (CASSAL and GERRANS), A., ii, 331.
 estimation of, colorimetrically (CASSAL and GERRANS), A., ii, 332.
 estimation of, occurring naturally in vegetable juices (HEBEBRAND), A., ii, 181.
Boron sulphide, action of ammonia on (STOCK and BLIX), A., ii, 208.
Bowenite from Kashmir (MCMAHON), A., ii, 303.
Brain, auto-digestion of the (KUTSCHER and LOHMANN), A., ii, 737.
 extract of (VINCENT and CRAMER), A., ii, 673.
 protagon of the (LESEM and GIES), A., ii, 90.
 irritability of the, during anaemia (GIES), A., ii, 443.
Brassicidic acid, isomerism between erucic acid and (ALBITZKY), A., i, 227.
 oxidation of, by Caro's acid (ALBITZKY), A., i, 228.
Brazan. See Phenylene-2:3-naphthylene oxide.
Brazilin and haematoxylin (HERZIG and POLLAK), A., i, 270, 713.
 transformation products of (v. KOSTANECKI and LLOYD), A., i, 645.
 degradation of (v. KOSTANECKI), A., i, 193 ; (PERKIN), A., i, 430.
Bread fermentation (PARENTI), A., ii, 746.
Brewing materials, electrolytic estimation of minute quantities of arsenic in (THORPE), T., 974 ; P., 183.
Bricks, incrustation on (WOY), A., ii, 370.
 potash alum as an efflorescence on (KELLER), A., ii, 296.
Bridge-linking, influence of, on asymmetry (SKRAUP), A., ii, 67, 202 ; (JACOBSEN), A., ii, 68.
 "Brilliant-yellow," ethers of (MEYER and MAIER), A., i, 870.
Briquettes, ferro-nickel, technical analysis of (JAMES and NISSEN), A., ii, 244.
Bromal hydrate, excretion of, in the urine (MARALDI), A., ii, 442.
Bromine, velocity and nature of the reaction between oxalic acid and (RICHARDS and STULL), A., ii, 15.

Bromine, tension of the vapour of, in solutions of hydrobromic acid (RICHTER-RJEWSKAJA), A., ii, 717.
influence of salts on the solubility in water of (MC LAUCHLAN), A., ii, 716.
compounds of, with aluminium bromide, ethyl bromide, and carbon disulphide (PLOTNIKOFF), A., i, 137.
Bromic acid, estimation of, by the direct action of arsenious acid (GOOCH and BLAKE), A., ii, 178.
Bromine, detection of chlorine, iodine, and, in presence of one another (BENEDICT and SNELL), A., ii, 750.
spectroscopic detection of small quantities of chlorine, iodine, and (PANAOTOVIC), A., ii, 177.
qualitative test for iodine and (PERKIN), A., ii, 177.
detection of, in urine (SALKOWSKI), A., ii, 571; (CATHCART), A., ii, 572.
separation of thiocyanate and (KÜSTER and THIEL), A., ii, 136, 510.
Bromoamides, transformation of, into amines (HANTZSCH), A., i, 29.
Bronzes, analysis of (WALTERS and AFFELDER), A., ii, 614.
Bronzite from Mohelno, Moravia (KOVÁČ), A., ii, 556.
Brown coal tar, chemistry of (ROSENTHAL), A., i, 396.
α-picoline in (FRESE), A., i, 364.
thionaphthen from (BOES), A., i, 50.
Brucea sumatrana, seeds of (POWER and LEES), A., i, 772.
Bumping, the prevention of (SCUDDER), A., ii, 266.
Burettes, method for calibrating (HORN and VAN WAGENER), A., ii, 683.
Burner, Bunsen, carbon monoxide as a product of combustion by the (THORPE), T., 318; P., 14.
gas (QUENNESSEN), A., ii, 762.
isoButaldehyde, condensation of, with *m*-ethoxybenzaldehyde (SUBAK), A., i, 493.
Butane, αγ-dicyano-(FRANKE and KOHN), A., i, 66, 153.
tert.-Butane, nitroso- (BAMBERGER and SELIGMAN), A., i, 322.
Butanedicarboxylic acids. See:—
Adipic acid.
Dimethylsuccinic acids.
α-Ethylsuccinic acid.
α-Methylglutaric acid.
Teraconic acid.
Butanetetracarboxylic acid. See αδ-Di-carboxyadic acid.
Butane-αγ-tricarboxylic acid, α-bromo- and α-iodo-, ethyl esters (SILBERRAD and EASTERFIELD), P., 38.

Butanethione, polymeride of (LETEUR), A., i, 605.
Butea frondosa, coloured constituents of (HILL), P., 133; (HUMMEL and PERKIN), P., 134.
Butein (HUMMEL and PERKIN), P., 134.
1¹-Butenylbenzene. See α-Phenyl-α-butylene.
Butter, composition of, from separate cows (KLEIN and KIRSTEN), A., ii, 114.
“renovated” (CRAMPTON), A., ii, 516.
Butter fat, influence of feeding with cottonseed meal and sesame cakes on the composition of (SWAVING), A., ii, 340.
refraction of (BAIER), A., ii, 249.
Butters, coloured, Halphen's reaction with (UTZ), A., ii, 579.
isoButyl alcohol, products of the slow combustion of (V. STEPINSKI), A., i, 61.
tert.-Butyl alcohol (*trimethylcarbinol*), physical properties of (DE FORCRAND), A., i, 455.
tert.-Butyl alcohol, tribromo-, physiological action of (HOUGHTON and ALDRICH), A., ii, 315.
isoButyl glycol, nitro-, action of hydrogen bromide on (DEMJANOFF), A., i, 394.
tert.-Butyl iodide, condensation of, with resorcinol (GUREWITSCH), A., i, 27.
sec.-Butylamine, optically active forms of (THOMÉ), A., i, 321.
tert.-Butylamine, oxidation of (BAMBERGER and SELIGMAN), A., i, 322.
Butylechloralantipyrine (CALDERATO), A., i, 200.
isoButylecyanoacetamide (GUARESCHI), A., i, 736.
isoButylene, nitro- (BOUVEAULT and WAHL), A., i, 596.
Butylhydantoin, tetrahydroxy-, *N*-phenyl derivative of (NEUBERG and WOLFF), A., i, 74.
tert.-Butylhydroxylamine (BAMBERGER and SELIGMAN), A., i, 322.
2-tert.-Butylindole and its picrate (PLANCHER and FORGHIERI), A., i, 114.
p-tert.-Butylphenol, decomposition of (ANSCHÜTZ and RAUFF), A., i, 555.
p-tert.-Butylphenol, and 2:6-dibromo- (LEWIS), T., 329; P., 41.
4-tert.-Butylphenol-6-sulphonic acid, 2-bromo-, potassium salt (LEWIS), T., 330; P., 41.
Butylpropionic acid. See α-Heptinoic acid.
3-isoButylpyrazolone (BOUVEAULT and BONGERT), A., i, 143.

4-tert.-Butylpyridine and its salts (KOENIGS and HAPPE), A., i, 851.
sec.-Butylthiocarbimides, *d*- and *l*- (THOMÉ), A., i, 321.
Butylthiohydantoic acid, tetrahydroxy-, *N*-phenyl derivative of (NEUBERG and WOLFF), A., i, 74.
Butyric acid, α -amino- β -hydroxy-, and its salts, and α -nitro- β -hydroxy-, and its acetyl derivative (EGOROFF), A., i, 790.
 $\beta\gamma$ -dibromo- and γ -chloro- β -bromo- (LESPIEAU), A., i, 547.
 β -cyanohydroxy-, ethyl ester (BUCHERER), A., i, 612.
 β -hydroxy-, estimation of, in urine (DARMSTAEDTER), A., ii, 394.
 α - and β -hydroxy-, methylene compounds of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 149.
Butyric acid (α -methylpropionic acid), β -amino- α -hydroxy-, and its additive salts (EGOROFF), A., i, 790.
*iso***Butyric acid**, α -hydroxy-, methylene compound of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 149.
*iso*amyl ester (GRIGNARD), A., i, 31.
 α -thiol-, and its silver salt (v. BRAUN), A., i, 15.
Butyric acids, lead salt (COLSON), A., i, 396, 456, 601.
Butyrin, action of glycerol extracts of gastric mucous membrane on (BÉNECH and GUYOT), A., ii, 665.
action of sodium carbonate on (DOYON and MOREL), A., ii, 225.
Butyrins and *iso***Butyrins**, synthesis of (GUTH), A., i, 226.
*iso***Butyro-butyr-** and *n*- and *iso*-valer-amides (TARBOURIECH), A., i, 738.
Butyrochromic acid (PICTET and GENEQUAND), A., i, 601.
Butyronitrile, $\beta\gamma$ -dibromo- (LESPIEAU), A., i, 547, 684.
bromohydroxy- (LESPIEAU), A., i, 547.
*iso***Butyronitrile**, α -hydroxy-, from acetone (BUCHERER), A., i, 612.
Butyropiponamides, *n*- and *iso*- (TARBOURIECH), A., i, 738.
Butyrylacetic acid, methyl and ethyl esters, and copper and sodium derivatives (BOUVEAULT and BONGERT), A., i, 142.
ethyl ester, and its copper salt (MOUREU and DELANGE), A., i, 399.
*iso***Butyrylacetic acid**, ethyl ester (BOUVEAULT and BONGERT), A., i, 143; (MOUREU and DELANGE), A., i, 399.
Butyrylacetone and its sodium derivative (BOUVEAULT and BONGERT), A., i, 142.
Butyrylisobutyrylacetic acid, methyl esters and copper derivative (BOUVEAULT and BONGERT), A., i, 143.
Butyrylisobutyrylmethane and its copper derivative (BOUVEAULT and BONGERT), A., i, 143.
Butyrylcamphor (MALMGREN), A., i, 711.
Butyrylhydrazine (BOUVEAULT and BONGERT), A., i, 64.
Butyrylpropionic acid (BOUVEAULT and BONGERT), A., i, 143.
 α -**Butyrylpropionic acid**, methyl ester (BOUVEAULT and BONGERT), A., i, 144.
Butyrylsuccinic acid, methyl ester (BOUVEAULT and BONGERT), A., i, 143.
Bye laws, changes in the, P., 199.
Bystropogon origanifolius, oil of (SCHIMMEL & Co.), A., i, 187.

C.

Cabrerite, artificial production of (DE SCHULTEN), A., ii, 655.
Cacao, constituents of, and their estimation (DEKKER), A., ii, 619.
estimation of theobromine in (WELLMANS), A., ii, 250; (DEKKER), A., ii, 459.
Cacao-seed shells, composition of, and its detection (DEKKER), A., ii, 172.
Cacodylic acid and its salts (D'EMILIO) A., ii, 252; (BOUGAULT), A., ii, 339.
amphoteric character of (v. ZAWIDZKI), A., i, 801.
Cadaverine, presence of, in the products of hydrolysis of muscle (ÉTARD and VILA), A., i, 589.
Cadinene from the oil of the wood of atlas cedar (GRIMAL), A., i, 46.
d-Cadinene (GRIMAL), A., i, 46, 185; (DEUSSEN), A., i, 429.
and its dihydrochloride and dihydrobromide (GRIMAL), A., i, 185.
Cadmium alloys with copper (DENSO), A., ii, 293.
with mercury, nature of, and their electromotive behaviour (BIJL), A., ii, 6; (JAEGER), A., ii, 258.
Cadmium salts, compounds of, with ethylenediamine (BARBIER), A., i, 403.
soluble, volumetric estimation of (FONZES-DIACON and CARQUET), A., ii, 617.
Cadmium hydroxide, action of, on ammonium salts (GROSSMANN), A., ii, 146.
sulphate, supposed transition point of the hydrate of, $\text{CdSO}_4 \cdot \frac{3}{2} \text{H}_2\text{O}$ (v. STEINWEHR), A., ii, 147.

Cadmium sulphide, preparation of crystallised (VIARD), A., ii, 427.
Cadmium cobalticyanide and its alkali double salts (FISCHER and CUNTZE), A., i, 76.
Cadmium, detection of, in zinc ores (BIEWEND), A., ii, 105.
Cæsium, atomic weight of (RICHARDS and ARCHIBALD), A., ii, 366.
Cæsium chloronitroiridium compound (MIOLATI and GIALDINI), A., ii, 25.
Cæsium carbide (MOISSAN), A., i, 546.
chloride, physiological action of (HANFORD), A., ii, 502.
mercuric double chlorides and their solubility (FOOTE), A., ii, 728.
hydride (MOISSAN), A., ii, 367.
periodides (FOOTE), A., ii, 367.
thorium sulphate (MANUELLI and GASPARINETTI), A., ii, 375.
æsium acetylidyne acetylene (MOISSAN), A., i, 545.
Cæsium-ammonium, preparation and properties of (MOISSAN), A., ii, 477.
Caffeine from cacao (DEKKER), A., ii, 173.
estimation of (KATZ), A., ii, 250.
estimation of, in cacao (DEKKER), A., ii, 619.
Caffeine, amino-, acyl derivatives of (MEISTER, LUCIUS, & BRÜNING), A., i, 512.
Calaminthone and its oxime, semicarbazone, and hydrochloride (GENVRESSE and CHABLAY), A., i, 354.
Calcite from the Crimea (ZEMJATS-CHENSKY), A., ii, 27.
Meigen's method of discriminating aragonite and (HUTCHINSON), A., ii, 379.
Calcite-sand crystals (BARBOUR and FISHER), A., ii, 156.
Calcium, electrolytic preparation of (RUFF and PLATO), A., ii, 19, 211; (BORCHERS and STOCKEM), A., ii, 19, 145, 211; (ARNDT), A., ii, 76; (GOODWIN), A., ii, 725.
action of, on alcoholic ammonia (DOBY), A., i, 546.
distribution of, in animal organs (TOYONAGA), A., ii, 164.
action of, on the heart (LANGENDORFF and HUECK), A., ii, 498.
physiological importance of, to plants (BRUCH), A., ii, 233.
Calcium salts, influence of, on the tone of plain muscle (STILES), A., ii, 163.
Calcium carbide, action of, on ammonium chloride (SALVADORI), A., i, 11.
chemical equation for reduction by (NEUMANN), A., ii, 20; (V. KÜGELGEN), A., ii, 76.

Calcium carbide, evaluation of commercial (RECHI), A., ii, 757.
hydroxide, solubility of, in solutions of alkali hydroxides (D'ANSELME), A., ii, 726.
oxide (*lime*), estimation of free, in basic slags (BISCHOFF), A., ii, 242.
peroxide, iodometry of (RUPP), A., ii, 42.
phosphate as an addition to food (SCHENKE), A., ii, 570.
phosphates, decomposition of insoluble, by ammonium citrate solutions (ZULKOWSKI and CEDIVODA), A., ii, 451.
lead orthoplumbate (KASSNER), A., ii, 371.
silicate (JORDIS and KANTER), A., i, 476, 595.
melting point of, and of its mixture with sodium silicate (KULTASCHEFF), A., ii, 545.
Dicalcium silicate in Portland cement (REBUFFAT), A., ii, 146.
Calcium sulphate, solubility of, in solutions of sodium chloride (CLOÉZ), A., ii, 291; (D'ANSELME), A., ii, 478.
solutions, saturated, as a basis for conductivity (HULETT), A., ii, 260.
See also *Gypsum*.
sulphide containing bismuth, phosphorescence of, in presence of traces of sodium (DE VISSER), A., ii, 522.
estimation of, in bone charcoal (RÖSSING), A., ii, 105.
hyposulphite, synthesis of (MOISSAN), A., ii, 76.
thioaluminates, formulæ of, and the action of sea water on (REBUFFAT), A., ii, 76.
Calcium, precipitation of, by sodium carbonate (STILLMAN and Cox), A., ii, 647.
estimation of, gravimetrically (GUTHRIE and BARKER), A., ii, 757.
estimation of, in urine (DE JAGER), A., ii, 182.
and magnesium, estimation of, volumetrically, in water from salt marshes (D'ANSELME), A., ii, 695.
simultaneous estimation and separation of barium, strontium, and (ROBIN), A., ii, 613.
separation of, from manganese (DITT-RICH and HASSEL), A., ii, 243.
Calculi from the prostate (PUAUX), A., ii, 444.

Calefaction, temperature of, and its employment in alcoholometry (BOR-DIER), A., ii, 264.

Calorific value of foods, estimation of, by elementary composition (VOIT), A., ii, 384.

of oxygen (KRUMMACHER), A., ii, 384.

Calorimetric bomb, influence of the impurities of compressed oxygen on combustions in the (BERTHELOT), A., ii, 70.

and method of its use (ATWATER and SNELL), A., ii, 683.

Calumba root, alkaloids of (GADAMER), A., i, 50.

Calves, cretinism in (SELIGMANN), A., ii, 448.

Camomile, Roman, oil of (BLAISE), A., i, 507.

Camphane. See Dihydrocamphene.

Camphane carboxylic acid, synthesis of (ZELINSKY), A., i, 185.

Camphanic acid and its ester and amide (NOYES and WARREN), A., i, 147.

Camphene in the organism (FROMM, HILDEBRANDT, and CLEMENS), A., i, 429; (HILDEBRANDT), A., ii, 166.

Camphenilideneacetone and its semicarbazone and *p*-bromophenylhydrazone (CHEMISCHE FABRIK AUF AKTIEN), A., i, 504.

Camphenylglycolmonoglycuronic acid (FROMM, HILDEBRANDT, and CLEMENS), A., i, 429.

Camphocarboxylic acid and its esters and their sodium salts (BRÜHL), A., i, 4, 64, 314, 457.

new synthesis of (ZELINSKY), A., i, 229.

Camphocarboxylic acid, esters, rotation of (MINGUIN and DE BOLLEMONT), A., i, 352.

ethyl ester (DOKKUM), A., i, 504.

Camphocarboxylic acid, *o*-bromo- and *o*-iodo-, esters (BRÜHL), A., i, 548.

chloro-, methyl and amyl esters, and their isomerides (BRÜHL), A., i, 65.

*iso***Campholactone** (PERKIN and THORPE), P., 61.

i-**α-Campholytic acid** (PERKIN), T., 853.

β-Campholytic acid, bromo-, ethyl ester (PERKIN), T., 860.

Camphonitrophenol, preparation of (PONZIO), A., i, 44.

i-**Camphononic acid** and amide (NOYES and WARREN), A., i, 147.

Camphor, preparation of (SCHINDEL-MEISER), A., i, 267; (AMPÈRE ELECTRICAL Co.), A., i, 502.

optical rotating power of (SCHLUNDT), A., ii, 401.

Camphor, magnesium, and its interaction with acetaldehyde (MALMGREN), A., i, 711.

migration of the methyl group in the molecule of (BLANC and DESFON-TAINES), A., i, 564.

derivatives, influence of the double linking of the nucleus containing the asymmetric carbon atom on the rotatory power of the molecule of (HALLER), A., i, 503.

influence of solvents on the rotatory power of molecules of (HALLER and MINGUIN), A., ii, 521.

sulphur derivatives of (WUYTS), A., i, 428.

disulphide, preparation of (LOWRY and DONINGTON), T., 482; P., 57.

behaviour of, in the organism (FROMM, HILDEBRANDT, and CLEMENS), A., i, 429; (HILDEBRANDT), A., ii, 166.

influence of, on the excretion of dextrose in phloridzin diabetes (JACKSON), A., ii, 316.

action of, on the mammalian heart and vessels (WINTERBERG), A., ii, 307.

Camphor, bromo-, magnesium (MALMGREN), A., i, 711.

β-bromo-*α*'-nitro-, and its pseudoform (LOWRY), T., 960; P., 129.

chloropernitroso-, and its isomerides, derivatives of (ANGELI, ANGELICO, and CASTELLANA), A., i, 842.

α-hydroxy-, preparation of, and its salts, and methyl and ethyl ethers (MANASSE), A., i, 42.

β-hydroxy-, and its oxime, phenylhydrazone, semicarbazone, and benzenesulphonates (MANASSE), A., i, 48.

nitro-, and its derivatives (LOWRY), T., 953; P., 129, 156.

spontaneous decomposition of (LOWRY), P., 129.

isomitroso, stereoisomeric, silver and mercury compounds of (FRANCESCONI and PIAZZA), A., i, 836.

anhydride and its reactions and stereoisomeride (FORSTER), T., 530; P., 97.

Camphor glycol and its phenylurethane and chlorohydrin (MANASSE), A., i, 43.

Camphor group, syntheses in the, with magnesium powder (MALMGREN), A., i, 103, 710.

Camphor oil (SCHIMMEL & Co.), A., i, 185.

i-a-Camphoramic acid (NOYES and WARREN), A., i, 147.

Camphoric acid (NOYES and WARREN), A., i, 147.

hydroxy-, and its ethyl ester and salts (NOYES and WARREN), A., i, 147.

Camphorimide, distillation of, with soda-lime (BREDT and WORNAST), A., i, 770.

Camphorimine, *r*-nitro- (BLANC and DESFONTAINES), A., i, 565.

Camphoritic acids, peculiar disruption of, on the distillation of their calcium salts (BREDT and WORNAST), A., i, 770.

Camphorotriple, physical constants of (PAWLEWSKI), A., i, 405.

Camphorosma Monspeliaca, oil of (SCHIMMEL & Co.), A., i, 186.

Camphoroxime, silver and mercury compounds of (FRANCESCONI and PIAZZA), A., i, 835.

Camphorquinone, condensation of, with hydrogen cyanide, and the effect of catalytic agents on the reaction (LAPWORTH), T., 996; P., 189.

dioximes of, and their peroxide (FORSTER), T., 514; P., 97.

reactions of (MANASSE and SAMUEL), A., i, 45.

isoCamphorquinone, constitution of (MANASSE and SAMUEL), A., i, 45.

Camphorquinonemonosemicarbazone (DIELS and VOM DORF), A., i, 862.

Camphor- β -thiol and its salts and acetyl and benzoyl derivatives (LOWRY and DONINGTON), T., 479; P., 57.

Camphorylaminoacetic acid, bornyl and menthyl esters, and their salts (EINHORN and JAHN), A., i, 351.

Camphorylglycine, ethyl ester, and its hydrochloride and nitrosoamine (EINHORN and JAHN), A., i, 43.

sesquiCamphorylhydroxylamine (LOWRY), T., 953; P., 129.

Camphorylmethylpropylcarbinol (MALMGREN), A., i, 711.

Camphorylexime, β - and π -bromo-, and their acetyl and benzoyl derivatives (LOWRY), T., 966; P., 130.

Camphoryloxime-anhydride (LOWRY), T., 957; P., 156.

Camphylic acids, α - and β -, preparation, constitution, and separation of, and their derivatives (PERKIN), T., 835.

Canal rays. See under Photochemistry.

Candeuphorbone and **Candeuphorben** (REBUFFAT), A., ii, 95.

Cantharene (HARRIES and ANTONI), A., i, 614.

Cantharides, assay of (LÉGER), A., i, 517.

Caoutchouc (*indiarubber*) (WEBER), A., i, 845.

varieties of (HARRIES), A., i, 642.

chemistry of (HARRIES), A., i, 189.

and indiarubber goods, analysis of (WEBER), A., ii, 762.

Capillarity of solutions (MATHIEU), A., ii, 13.

Capillary film, theory of the, between the homogeneous phases of liquid and vapour (BAKKER), A., ii, 62.

Carbamide, formation of, by the oxidation of albumin (ABDERHALDEN), A., i, 588, 779; (JOLLES), A., i, 723; (LANZER), A., ii, 584.

formation of, by the direct hydrolysis of lead cyanate (CUMMING), T., 1391; P., 274.

formation of, from uric acid (RICHTER), A., i, 468.

dissociation constant of (WALKER and WOOD), T., 490; P., 67; (WOOD), T., 576; P., 68.

decomposition of (FAWSITT), A., ii, 15; (WALKER), A., ii, 136.

action of, on chromium chloride dihydrate (PFEIFFER), A., i, 612.

action of, on pyruvic acid (SIMON), A., i, 314.

hydrochloride, hydrolysis of (WALKER and Wood), T., 484; P., 67.

magnesium phosphate, attempts to prepare (PORCHER and BRISAC), A., i, 618.

occurrence of, in plants (BAMBERGER and LANDSIEDL), A., ii, 567.

See also Urea.

Carbamide, thio-. See Thiocarbamide.

Carbamic acid, ethyl ester, sodium derivative, synthesis by means of (DIELS), A., i, 324.

1-Carbamino-4-acetyl-5-methyltriazole, semicarbazone of (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 207.

Carbaminoglycylglycineamides, α - and β - (FISCHER), A., i, 466.

1-Carbamino-5-methyltriazole-4-carboxylic acid and its ethyl ester and silver salt (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 206.

1-Carbanilino-1-4-diphenylsemithiocarbazide and its hydrochloride (BUSCH and FREY), A., i, 537.

Carbanilphenylbenzenehydrazidine (VOSWINCKEL), A., i, 777.

Carbazines, thio-. See Thiocarbazines.

Carbazoles, formation of (JAPP and MAITLAND), T., 267; P., 19.

Carbazolesulphonic acid, dinitro-(WIRTH & SCHOTT), A., i, 54.

Carbethoxyalanylglycylglycine (FISCHER), A., i, 799.

Carbethoxyglycine and its derivatives (FISCHER and OTTO), A., i, 608.

Carbethoxyglycylalanine and its derivatives (FISCHER and OTTO), A., i, 608.

Carbethoxyglycyl-*dl*-leucine and -tyrosine (FISCHER and BERGELL), A., i, 694.

Carbides, preparation of (MOISSAN), A., i, 595.
See also under the separate Metals and Metalloids.

Carbimides, new derivatives of (ACREE), A., i, 861.
thio-. See Thiocarbimides.

Carbohydrate acids, experiments on the (MEYER), A., ii, 313.
group in the protein molecule (OSBORNE and HARRIS), A., i, 586.

Carbohydrates, theory of the (SALKOWSKI and NEUBERG), A., i, 7, 551; (KUSTER), A., i, 402.
of barley, and their transformations during the course of germination (LINDET), A., ii, 606.
from the globulins of blood-serum (LANGSTEIN), A., i, 374, 734.
of mace and nutmeg (BRACHIN), A., ii, 568.
variation of the, in the stems and roots of trees (LECLERC DU SABLON), A., ii, 170.
synthesis of (WALTHER), A., i, 67.
composition of the reserve, of the albumen of some palms (LIÉNARD), A., ii, 36.
hydrolysis of, by soluble ferments (BOURQUELOT), A., i, 378, 452; (BOURQUELOT and HÉRISSEY), A., i, 551.
action of hydrogen peroxide on, in presence of ferrous sulphate (MORELL and CROFTS), T., 1284; P., 208.
digestibility of (WEISER and ZAITSCHEK), A., ii, 225.
absorption and fermentative splitting of, in the small intestine of dogs (ROHMANN and NAGANO), A., ii, 494.
degradation of, in the animal organism (BACH and BATELLI), A., ii, 495.
influence of, on protein putrefaction (SIMNITZKI), A., i, 781.
of the *d*-series, biochemical transformation of, into those of the *l*-series (SALKOWSKI and NEUBERG), A., i, 7, 551; (KUSTER), A., i, 402.

Carbohydrates, estimation of, in faeces (WEISER and ZAITSCHEK), A., ii, 516.
See also Bioses, Polysaccharides, Sugars, and Trisaccharides.

Carbon, tervalent (LOB), A., i, 807, 811.
combustion of, in reductions by calcium carbide (v. KUGELGEN), A., ii, 475.
direct combination of, with chlorine (v. BOLTON), A., ii, 365.

Carbon tetrachloride and benzene, vapour pressures and boiling points of mixtures of (YOUNG and FORTHEY), T., 60.
and chlorobenzene, action of sodium on (SCHMIDLIN), A., i, 687.

Carbon monoxide (carbonic oxide), presence of, in the gases of the fumerolles of Mount Pelée in Martinique (MOISSAN), A., ii, 155.
a product of combustion by the Bunsen burner (THORPE), T., 318; P., 14.
and dioxide, equilibrium between iron oxides and (BAUR and GLAESNER), A., ii, 423.
velocity of transformation of (SMITS and WOLFF), A., ii, 276, 638.
combination of, with chlorine, under the influence of light (DYSON and HARDEN), T., 201.
union of, with oxygen, and the drying of gases by cooling (GIRVAN), P., 236.
velocity of the reaction between oxygen and (KUHL), A., ii, 639.
decomposition of (SCHENCK and ZIMMERMANN), A., ii, 423; (SMITS and WOLFF), A., ii, 638.
action of hydrogen peroxide and of electrolytic oxygen on (JONES), A., ii, 594.
action of, on iron and its oxides (CHARPY), A., ii, 599.
action of ozone on (WATERS; JONES), A., ii, 594.
action of, on potassium ferricyanide in solution (MULLER), A., i, 238.
action of, on potassium manganocobalti-, chromi-, and platinocyanides (MULLER), A., i, 238.
reduction of metallic oxides by (FAY and SEEKER), A., ii, 597.
in the blood of isolated animals and of fishes (NICLOUX), A., ii, 162.
extraction of, from coagulated blood (NICLOUX), A., ii, 241.
disappearance of, from the blood of persons poisoned by that gas (GARNIER), A., ii, 560.
estimation of, in air (SPITTA), A., ii, 452.

Carbon monoxide, estimation of, in vitiated air (JEAN), A., ii, 103.

Carbon dioxide (*carbonic anhydride*), state of, in aqueous solution (WALKER), T., 182.

preparation of solid (TECLU), A., ii, 422.

the equilibrium $\text{CO}_2 + \text{H}_2 = \text{CO} + \text{H}_2\text{O}$ (HABEN), A., ii, 274, 711.

equilibrium between sodium carbonates, water, and (McCoy), A., ii, 413.

action of, on phenylmagnesium bromide (SCHROETER), A., i, 821.

interaction of, with potassium hydride (MOISSAN), A., ii, 365.

influence of, on diastatic action (MOHR), A., i, 377.

elimination of, during activity of muscles (JOHANSSON), A., ii, 90.

influence of, in the air, on vegetation (DEMOUSSY), A., ii, 321.

assimilation of, in green plants (BOKORNY), A., ii, 505.

reduction of, in chlorophyllous assimilation (POSTERNAK), A., ii, 680.

action of, on the movements of water in plants (KOSAROFF), A., ii, 94.

as an agent in producing artificial parthenogenesis in star-fish (DELAGE), A., ii, 162, 737.

estimation of, in air by the Walker method (WOODMAN), A., ii, 332.

estimation of, in vitiated air (JEAN), A., ii, 103.

gasometric estimation of, by the measurement of liquid, or determination of pressure (WOHL), A., ii, 39, 453.

estimation of, in solid carbonates (WOHL), A., ii, 451.

estimation of, in alkali and alkaline earth carbonates by means of the alkalimeter (FOKIN), A., ii, 391.

estimation of, in drinking water (FORBES and PRATT), A., ii, 694.

Carbonates, acid, action of hydrogen peroxide on (KASANEZKY), A., ii, 366.

test for (PERKIN), A., ii, 177.

Percarbonic acid, sodium salt (TANATAR), A., ii, 208.

Carbon monosulphide, preparation of (THOMSEN), A., ii, 288.

disulphide, some constants of (v. UNRUH), A., ii, 74.

compounds of, with bromine, aluminium bromide, and ethyl bromide (PLOTNIKOFF), A., ii, 137.

compounds of, with nitrogen and sulphur (DELÉPINE), A., i, 236, 237, 269.

Carbon, estimation of, in steel by combustion (AUCHY), A., ii, 241.

estimation of, in steel, use of ferric potassium chloride for the (SARGENT), A., ii, 332.

See also Bone charcoal, Charcoal, Diamond, Graphite, and Lampblack.

Carbon combustions. See under Combustions.

Carbon compounds. See Organic Compounds.

Carbonate group, rhombohedral, new member of the (JOHNSON), A., ii, 223.

Carbonatopentamminecobalt salts (WERNER and GOSLINGS), A., ii, 600.

Carbonyl chloride, action of, on *p*-aminophenol (SCHÖNHERR), A., i, 477.

action of metallic thiocyanates on (DIXON), T., 84.

action of, on organo-magnesium compounds (GRIGNARD), A., i, 455; (SACHS and LOEUVY), A., i, 592.

Carbonyl sulphide, syntheses by means of (WEIGERT), A., i, 418.

Carbonyl-4-amino-1-hydroxy-5-methoxyphenol (POLLAK and GANS), A., i, 252.

Carbonyldiphenylhydrazine hydrochloride (ACREE), A., i, 861.

Carbonyl-*m*-methylsalicylamide, formation of (EINHORN and METTLER), A., i, 31.

Carbonylsalicylamide, formation of (EINHORN and SCHMIDLIN), A., i, 31.

and its salts, *N*-acyl-, chloro-, -methyl, and -ethyl derivatives (EINHORN and METTLER), A., i, 30.

Carborundum (*silicon carbide*), analysis of (GOETZL), A., ii, 104.

Carbostyryl, 8-dibromo- (DECKER and STAVROPOULOS), A., i, 719.

Carboxybenzenediazonium chlorides, *m*- and *p*- (v. EULER), A., i, 299.

2-Carboxy-5:6-dimethoxyphenoxyacetic acid (HERZIG and POLLAK), A., i, 718.

1-Carboxy-4-methylfulvene-2-propionic acid (DUDEN and FREYDAG), A., i, 420.

1-Carboxy-4-methylcyclopentadiene-2-propionic acid, and its esters, salts, and bromo-derivatives (DUDEN and FREYDAG), A., i, 420.

***p*-Carboxyphenoxyacetamide**, *m*-amino- and *o*-nitro, methyl esters (EINHORN and RUPPERT), A., i, 260.

1-Carboxy-6-phenyl-4-methylfulvene-2-propionic acid (DUDEN and FREYDAG), A., i, 421.

Careleminic, isoCareleminic and Careleminic acids, Caramyrin, and Carele-resen (TSCHIRCH and SAAL), A., i, 430.

Carmimic acid and its salts (PERKIN and WILSON), T., 138.

Caro's acid or reagent, composition of (PRICE), T., 543; P., 107.

velocity of formation of, from per-sulphuric acid, and its formula (MUGDAN), A., ii, 640.

action of, on chromic acid (BACH), A., ii, 80.

use of, for the destruction of organic matter before testing for arsenic (TARUGI), A., ii, 240.

See also Persulphuric acids.

Carpinic acid, bromo- (JOWETT), T., 463; P., 56.

Cartilage, chondroitin-sulphuric acid and the presence of a hydroxy-amino-acid in (ORGLER and NEUBERG), A., i, 589.

of mammals, glycogen in the (PFLUGER), A., ii, 90.

Carvacrol-alcohol (MANASSE), A., i, 28.

Carvone, condensation of, with ethyl acetoacetate in presence of hydrogen chloride (RABE), A., i, 268; (RABE and WEILINGER), A., i, 269.

condensation of, with ethyl acetoacetate in presence of sodium ethoxide (RABE; RABE and WEILINGER), A., i, 268.

behaviour of, in the organism (HILDEBRANDT), A., ii, 166.

Casein, acid properties and molecular weight of, and its decomposition on drying (LAQUEUR and SACKUR), A., i, 300.

electrical conductivity and viscosity of solutions of (SACKUR), A., ii, 4.

hydrolysis of (FISCHER), A., i, 779.

and paracasein, salts of, with acids, and their relation to American cheddar cheese (VAN SLYKE and HART), A., i, 215.

precipitated by rennet, estimation of (RICHMOND), A., ii, 584.

estimation of, volumetrically, in milk (DENIGES), A., ii, 460.

Caseinogens of cows' and asses' milk (STORCH), A., i, 214.

Casimirine and **Casimirol** from *Casimiroa edulis* (BICKERN), A., i, 649.

Cassia flowers, ethereal oil of (WALBAUM), A., i, 845.

Catalase (POZZI-ESCOT; BACH and CHODAT), A., i, 671.

nature and function of (LOEVENHART and KASTLE), A., ii, 415; (KASTLE and LOEVENHART), A., ii, 538.

Catalase, soluble and insoluble (LOEW), A., i, 544.

Catalysis and Catalytic action. See Affinity.

Catechin (CLAUSER), A., i, 270.

Catechol (*pyrocatechol*; 1:2-dihydroxy-benzene) from coal tar (BORNSTEIN), A., i, 166.

mono- and di-methylamine derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 559.

dimethyl ether of, dinitro-(BLANKSMA), A., i, 623.

oxalate of (BISCHOFF and v. HEDENSTRÖM), A., i, 27.

Cathode rays. See under Photochemistry.

Cathodes. See Electrochemistry.

Cattle, straw as food for (LEHMANN), A., ii, 96.

Cedar, atlas, oil of the wood of (GRIMAL), A., i, 46.

Celestite from Tunis (TERMIER), A., ii, 489.

Cell-globulin, coagulation temperature of (MOTT and HALLIBURTON), A., ii, 311.

Cell-life, function of peroxides in (CHODAT and BACH), A., i, 219, 378; (BACH and CHODAT), A., i, 377, 671.

Cells, action of acids and acid salts on (PESKIND), A., ii, 31, 306.

iodine in (JUSTUS), A., ii, 311.

Cells, galvanic. See Electrochemistry.

Cells, plant, isolation of the enzyme which effects anaerobic respiration in (STOKLASA and CZERNY), A., ii, 320.

Cellulase (VAN ITERSON), A., ii, 503.

Cellulose, soluble (VIGNON), A., i, 461.

action of inorganic acids on (GOSTLING), T., 190.

decomposition of, by aerobic micro-organisms (VAN ITERSON), A., ii, 503.

nitrates, constitution of (VIGNON), A., i, 462.

estimation of, in foods and fodders (KONIG), A., ii, 764.

Cellulose powders, nitro-, new stability test for (SY), A., ii, 617.

Cement, Portland, protective influence of, on iron and steel (TOCH), A., ii, 650.

decomposition of, by the action of sea water (REBUFFAT), A., ii, 76.

dicalcium silicate in (REBUFFAT), A., ii, 146.

analysis (STANGER and BLOUNT), A., ii, 43; (YOUNG and BAKER), A., ii, 44.

Cementation of iron (CHARPY), A., ii, 430, 599.

Cementation of steels (GUILLET), A., ii, 298, 483.

Cephalorachid liquid, human, presence of dextrose in (GRIMBERT and COULAUD), A., ii, 385.

Cerebrin, influence of, in the organism (DE POEHL), A., ii, 164.

Cerebrospinal fluid, the reducing substance of (ROSSI), A., ii, 673.

Cerite metals, separation of, by means of chromic acid (BÖHM), A., ii, 149.

See also Earths, rare.

Cerium, atomic weight of (BRAUNER and BATEK; BRAUNER), A., ii, 295.

and its hydride and nitride (MUTHMANN and KRAFT), A., ii, 212.

hydride and nitride, specific heat of (KELLENBERGER and KRAFT), A., ii, 213.

hydride, dissociation of (MUTHMANN and BAUR), A., ii, 213.

oxides, electromotive behaviour of (BAUR and GLAESSNER), A., ii, 586.

dioxide, estimation of, by iodine (MEYER and KOSS), A., ii, 45.

Ceric chromate (BÖHM), A., ii, 149; (BROWNING and FLORA), A., ii, 429.

Cerous salts, autoxidation of (ENGLER and GINSBERG), A., ii, 599; (BAUR), A., ii, 729.

Cerium, estimation of, volumetrically (WAEGNER and MÜLLER), A., ii, 242, 512.

Cerium oxalicum medicinale, testing of (BÖHM), A., ii, 106.

Cetaric acid and its salts, methyl ester, imides, derivatives, and additive compounds (SIMON), A., i, 98.

Cetraatac acid (HESSE), A., i, 704.

Chabazite from the neighbourhood of Rome (ZAMBONINI), A., ii, 656.

Chalcopyrite from Sudbury, sperrylite from (DICKSON), A., ii, 302.

decomposition of, for analysis (BOUCHER), A., ii, 758.

estimation of copper in (SMITH), A., ii, 334.

Chalybite from Cornwall, composition and optical characters of (HUTCHINSON), A., ii, 380.

Charcoal, formation of, during the oxidation of the diamond (BERTHELOT), A., ii, 142.

amorphous wood, temperature of inflammation of, and the combustion of, in oxygen (MOISSAN), A., ii, 142.

Cheddar cheese, American, some compounds present in (VAN SLYKE and HART), A., ii, 388.

relation of carbon dioxide to proteolysis in the ripening of (VAN SLYKE and HART), A., ii, 609.

Cheddar cheese, caseins of (VAN SLYKE and HART), A., i, 215; ii, 388.

Cheese, estimation of proteolytic compounds in (VAN SLYKE and HART), A., ii, 399.

Chelidonium majus, berberine from (SCHLÖTTERBECK), A., i, 193.

Chemical action. See Affinity.

composition and molecular volume, connection between, of some crystallographically similar minerals (PRIOR), A., ii, 377.

constitution and composition in relation to density; halogenated compounds; sulphur compounds (KANONNIKOFF), A., ii, 11.

and fluorescence (MEYER), A., ii, 706.

and molecular weight of carbon compounds in relation to boiling point (HENRY), A., ii, 8.

and temperature, relation of viscosity of liquid substances to (BATSCHINSKI), A., ii, 12.

of corydaline, berberine, and other alkaloids in relation to their absorption spectra (DOBIE and LAUDER), T., 605; P., 7.

of laudanine and laudanosine in relation to their absorption spectra (DOBIE and LAUDER), T., 626; P., 9.

of solvents, relation between cryoscopic behaviour and (AUWERS, MANN and GIERIG), A., ii, 268.

Dynamics. See Affinity.

equilibrium. See Affinity.

potential and electromotive force (BANCROFT), A., ii, 627.

processes, coupling of (SCHILOFF), A., ii, 276.

theory, a new (ZESCHKO), A., ii, 590.

Chestnut tree extract, detection of, in oak extract (JEAN), A., ii, 118.

Chitamic acid, reactions of (NEUBERG and WOLFF), A., i, 74.

Chitaric acid (NEUBERG and WOLFF), A., i, 74.

Chitaric and Chitonic acids (FISCHER and ANDREAE), A., i, 678.

Chitoheptonic acid and its barium salt and dibenzoyl derivative (NEUBERG and NEIMANN), A., i, 74.

Chitose, action of, in the organism (CATHCART), A., ii, 741.

Chloral, condensation of, with the nitroanilines (WHEELER and WELLER), A., i, 246.

Chloral hydrate, estimation of, iodometrically (RUPP), A., ii, 699.

Chloraldiantranilic acid (v. NIEMEN-TOWSKI), A., i, 91.

Chloralose, influence of, on blood-gases (LIVON), A., ii, 161.

Chloric acid. See under Chlorine.

Chlorine, apparatus for the preparation of: lecture experiment (RUPP), A., ii, 69.

chemical dynamics of the reactions between benzene and, under the influence of different catalytic agents and of light (SLATOR), T., 729; P., 135.

direct combination of, with carbon (v. BOLTON), A., ii, 365.

combination of, with carbon monoxide under the influence of light (DYSON and HARDEN), T., 201.

Chlorine compounds with sulphur, boiling point curves of (ROOZEBOOM), A., ii, 634.

Hydrochloric acid (*hydrogen chloride*), absorption spectrum of (HARTLEY), T., 237.

apparatus for the electrolysis of; lecture experiment (RUPP), A., ii, 69.

and nitric acid, relative strength of (KÜHLING), A., ii, 203.

esterification of (VILLIERS), A., i, 674, 732.

action of solutions of, on metals in various solvents (PATTEN), A., ii, 417.

estimation of, in decarbonised substances (NEUMANN), A., ii, 243.

Hypochlorous acid, action of a solution of, on metals (WHITE), A., ii, 296.

Chloric acid, interaction of, with hydroiodic acid (MCCRae), P., 225.

Chlorates, new reaction for (DE KONINCK), A., ii, 21.

Perchloric acid, basicity of (ASTRUC and MURCO), A., ii, 17.

Perchlorates, estimation of (HÖNIG), A., ii, 237.

Chlorine, detection of bromine, iodine, and, in presence of one another (BENEDICT and SNELL), A., ii, 750.

spectroscopic detection of small quantities of bromine, iodine, and (PANAOTOVIC), A., ii, 177.

estimation of, in animal secretions, organs, and foods (STRZYZOWSKI), A., ii, 450.

estimation of, in urine (BERNARD), A., ii, 98.

Chlorine water, distillation of (RICHARDSON), T., 380; P., 39.

chlorite in the "protogine" of the Aar Massive, Switzerland (KÖNIGS-BERGER), A., ii, 558.

Chloro-anhydrides, inorganic, molecular weight of (ODDO), A., ii, 60.

use of, in alkalimetry (ODDO), A., ii, 333.

Chloro-ethers, the simplest (WEDEKIND), A., i, 456.

Chloroform, function of alcohol in preserving (ADRIAN), A., i, 596.

contraction on mixing, with ethyl ether (GEORGIEWSKY), A., i, 223.

condensation of, with aromatic diamines (WEINSCHENK), A., i, 281.

action of, on haemoglobin (KRÜGER), A., i, 216.

action of, on the heart and blood-vessels (SCHÄFER and SCHARLIEB), A., ii, 437.

estimation of, by densimetry (WALLER), A., ii, 699.

Chloromethyl esters, reactions of (DESCUDÉ), A., i, 168.

Chlorophyll (SIEBER-SCHUMOFF), A., i, 375.

haemoglobin, and lipochrome (MARCHEWSKI), A., i, 667.

formation of, in seedlings in rarefied air and rarefied oxygen (FRIEDEL), A., ii, 171.

Chloroplatinic acid and its salts (BELLUCCI), A., ii, 155.

Chlorosulphonic acid, esters (BUSHONG), A., i, 732.

Chocolate, calculation of real sugar in (LEYS), A., ii, 188.

Chocolate stone from the Aure valley in the Pyrenees (LIENAU), A., ii, 223.

Cholanic acid (PREGL), A., i, 318.

Cholesterol (PICKARD and YATES), P., 147.

from maize oil (GILL and TUFTS), A., i, 418.

from milk, identity of, with that from bile (MENOZZI), A., ii, 385.

bromination of (SCHRÖTTER), A., i, 625.

degradation of (DIELS and ABDERHALDEN), A., i, 819.

oxidation of (MAUTHNER and SUIDA), A., i, 625.

Cholic acid, isolation of, and its oxidation products (PREGL), A., i, 318.

Choline from *Strophantus hispidus* (KARSTEN), A., ii, 172.

occurrence and properties of (STRUVE), A., ii, 116.

synthesis of (KRÜGER and BERGELL), A., i, 795.

Chondroitin-sulphuric acid in cartilage (ORGLER and NEUBERG), A., i, 589.

Chorionin (FARKAS), A., ii, 741.

Chrome alum, action of, on gelatin (LUMIÈRE and SEYEWETZ), A., ii, 150.

Chromic acid—hydrogen peroxide reaction, influence of alkali molybdates and tungstates on the (REICHARD), A., ii, 245.

Chromous compounds, peroxidation of (MANCHOT and WILHELM), A., ii, 153.

Chromium tungsten carbide (MOISSAN and KOUZNETZOW), A., ii, 651.

Chromic chloride, action of liquefied ammonia on (LANG and CARSON), P., 147.

action of, on methylamine (LANG and JOLLIFFE), P., 147.

dihydrate, action of carbamide and thiocarbamide on (PFEIFFER), A., i, 612.

Chromic acid, ferrous sulphate, and potassium iodide, rate of reactions in solutions containing (BENSON), A., ii, 534.

action of Caro's reagent on (BACH), A., ii, 80.

oxidation by, in presence of other acids (PRUD'HOMME), A., ii, 430.

and its ammonium salts, analysis of (DOBROSERDOFF), A., ii, 761.

Chromates, a series of double (BRIGGS), T., 391.

Perchromic acid, non-existence of (PATTEN), A., ii, 431.

Chromium silicides (LEBEAU and FIGUERAS), A., ii, 486.

Chromium organic compounds (PFEIFFER and HAIMANN), A., i, 464.

Chromi-potassium cyanide, action of carbon monoxide on (MULLER), A., i, 238.

Tetrathiocyanodiamminediaquochromic acid and its isomeride (ESCALES and EHRENSPERGER), A., i, 797.

Chromium, separation of, from manganese (DITTRICH and HASSEL), A., ii, 243.

Chromomalonic acid, and its salts (HOWE), A., i, 459.

Chromone, 7,8-dihydroxy-, and its diacetate, synthesis of (DAVID and v. KOSTANECKI), A., i, 272.

Chrysanthemums (HÉBERT and TRUFFAUT), A., ii, 608.

Chrysazin, potassium derivative, and dihydroxy-, and its tetra-acetate (WÖLBLING), A., i, 841.

Chrysazin, bromo-derivatives of, and dihydroxy-, and its salts and tetra-acetate, and **Chrysazinamide** (SCHROB-DORFF), A., i, 840.

Chrysazindisulphonic acid and its potassium salt (WÖLBLING), A., i, 841.

Chrysocolla in the copper mines of Bena de Padru, near Ozieri, Sardinia (LOVISATO; RIMATORI), A., ii, 735. a remarkable case of hydration (PALMER), A., ii, 657.

Chrysophanic acid, constitution of (JOWETT and POTTER), T., 1327; P., 220.

Chrysophenin (MEYER and MAIER), A., i, 870.

Cider, effect of fermentation on the composition of (BROWNE), A., ii, 231.

Cigar smoke, amount of hydrogen cyanide in (HABERMANN), A., ii, 174; (THOMS), A., ii, 324.

Cilanic acid, formula of (PREGL), A., i, 318.

Cinchomeron-3-amic acid (KIRPAL), A., i, 198.

Cinchomeronic acid, conversion of, into apophyllenic acid (KAAS; KIRPAL), A., i, 117.

Cinchomeronic acid, 4-hydrogen-3-methyl ester (KIRPAL), A., i, 198.

Cinchomeronic methylbetalaine methyl ester (KIRPAL), A., i, 117.

Cinchona alkaloids. See under Alkaloids.

Cinchona bark, estimation of quinine in (HILLE), A., ii, 396.

Cinchonamine, thermochemistry of (BERTHELOT and GAUDECHON), A., ii, 270.

Cinchonic acid, formation of, from isatic acid, and its 2-cyano-derivative (PFITZINGER), A., i, 53.

Cinchonidine, thermochemistry of (BERTHELOT and GAUDECHON), A., ii, 270.

Cinchonine, thermochemistry of (BERTHELOT and GAUDECHON), A., ii, 270.

influence of spacial retardation on the isomerides of (SKRAUP), A., i, 715.

Cinchonines, isomeric, action of bromine on (ZWERGER), A., i, 513.

Cinnamaldehyde, action of formaldehyde and lime on (VAN MARLE and TOLLENS), A., i, 493.

action of nitrous fumes on (WIELAND), A., i, 768.

estimation of (HANUŠ), A., ii, 768.

Cinnamene. See Styrene.

Cinnamylacrylic acid, α -thiol- (ZIPSER), A., i, 273.

Cinnamylglutaric acid, and its anhydride, methyl ester, and anilide (VORLÄNDER), A., i, 632.

Cinnamic acid, electrolytic reduction of (MARIE), A., i, 605.

d-bromide and its esters, action of alkalis on (SUDBOROUGH and THOMPSON), T., 666, 1153; P., 106, 204.

Cinnamic acid, β -amino- α -cyano-, esters (SCHMITT), A., i, 399.
 isomeric α -bromo-, formation, separation, and transformation of (SUDBOROUGH and THOMPSON), T., 668, 1155; P., 106.
 isomeric β -bromo-, and their esters (SUDBOROUGH and THOMPSON), T., 1153; P., 204.

isoCinnamic acid (LIEBERMANN and HALVORSEN), A., i, 255; (MICHAEL and GARNER), A., i, 418; (LIEBERMANN), A., i, 485; (MICHAEL), A., i, 698.
 Michael's, attempts to prepare (SUDBOROUGH and THOMPSON), T., 1165; P., 204.

Cinnamon bark, amount of sugar in (v. CZADEK), A., ii, 568.
 leaf oil (SCHIMMEL & Co.), A., i, 187.

Cinnamomum pedatinervium, oil of (GOULDING), T., 1093; P., 201.

Cinnamoyl disulphide (v. BRAUN and RUMPF), A., i, 620.

Cinnamylformic acid. See Styrylglyoxylic acid.

Cinnamylidene chloride (CHARON and DUGOUJON), A., i, 240.
 α -bromo- and α -chloro- (CHARON and DUGOUJON), A., i, 472.

5-Cinnamylidene-3-allylrhodanic acid (ANDREASCH and ZIPSER), A., i, 856.

Cinnamylidene-dioxothiazole, -rhodanic acid, and -thiohydantoin (ZIPSER), A., i, 273.

Cinnamyl methyl ketone dinitro-, and its phenylhydrazone (FRIEDLÄNDER and COHN), A., i, 264.

Citraconic acid (*propylenedicarboxylic acid*), ethyl ester, condensation of, with the sodium derivative of ethyl methylmalonate (SVOBODA), A., i, 174.

cycloCitrals, α - and β -, separation of (HAARMANN & REIMER), A., i, 565.

Citramalic acid. See α -Methylsuccinic acid, α -hydroxy-.

Citric acid, condensation of, with benzaldehyde (MAYRHOFER and NE-METH), A., i, 344.
 ferric chloride as a test for (ROSENTHALER), A., ii, 765.
 detection of, in wine (SCHINDLER), A., ii, 112.
 methods of estimating, in commercial citrates (OLIVERI), A., ii, 113.

Citric acid, ammonium salt, solution of, as used in the estimation of phosphoric acid (VERWEIJ), A., ii, 451.

Citronella oil, estimation of the adulterant in (BAMBER), P., 292.

Citronellal, condensations with (RUPE and WALTHER), A., i, 841.

Citronellaldoxime and its transformation product (MAHLA), A., i, 264.

Citronellidene-acetone and -acetic acid and its methyl ester and salts (RUPE and LOTZ), A., i, 841.

Citrus madurensis, methyl methylantranilate in the leaves of (CHARABOT), A., i, 47.

Civet (HÉBERT), A., i, 60.
 analysis of (BURGESS), A., ii, 520.

Clays of Alsace (KÖRNER), A., ii, 30.
 from Bohemia and Moravia (KOVÁČ), A., ii, 557.
 from the Nürnberg district (KAUL), A., ii, 30.
 cause of the plasticity of (CUSHMAN), A., ii, 474.

Clostridium pastorianum, its morphology and properties as a butyric ferment (WINOGRADSKY), A., ii, 93.

Cloves, oil of, estimation of eugenol in (SPURGE), A., ii, 578.

Clover, white (DEHÉRAIN and DEMOUSSY), A., ii, 97.

Coal, bituminous, from Sweden (WINKLER ; NORDENSKIÖLD), A., ii, 305.
 estimation of, in pyrites (TREADWELL and KOCH), A., ii, 391.
 estimation of sulphur in (STODDART), A., ii, 40; (SUNDSTRÖM), A., ii, 326; (v. KONEK), A., ii, 572.

Coal mines, composition of the air from (GRÉHANT), A., ii, 70; (GUTHRIE, ATKINSON, and HAMLET), A., ii, 203.
 of the Donetz, composition of fire-damp from the (KURNAKOFF), A., ii, 156.

Coal tar, acetophenone in (WEISSGERBER), A., i, 348.
 catechol from (BÖRNSTEIN), A., i, 166.
 lutidines from (AHRENS and GORKOW), A., i, 515.
 tetrahydronaphthalene in (BOES), A., i, 161.

Cobalt compounds, analysis of (COPAUX), A., ii, 454.

Cobaltammonium compounds:—
Cobalt carbonatopentammine salts (WERNER and GOSLINGS), A., ii, 600.
Cobaltammonium thiocyanogen compounds (SAND) A., i, 467.
Pentamminenitrosocobalt salts (SAND and GENSSLER), A., ii, 549.

Cobalt salts, colour changes in (HARTELEY), T., 401; P., 49.

Cobalt oxide, electrolytic formation of (COEHN and GLÄSER), A., ii, 80.
 higher oxide of (TAYLOR), A., ii, 696.

Cobalt silicide, CoSi_2 (LEBEAU), A., ii, 22.
silicides (LEBEAU), A., ii, 80.

Cobalt organic compounds :—
Cobalticyanic acid, salts (FISCHER and CUNTZE), A., i, 76.
Cobalt-potassium cyanide, action of carbon monoxide on (MULLER), A., i, 238.
Cobaltodianiline thiocyanate (SAND), A., i, 468.
Cobaltohexaphenylhydrazine thiocyanate (SAND), A., i, 468.
Cobalto-di- and -tetra-pyridine thiocyanates (SAND), A., i, 468.
Cobaltous thiocyanate tetrapyridine (REITZENSTEIN), A., i, 112.

Cobalt, reactions of nickel and (MAI and SILBERBERG), A., ii, 216.
 detection of, in presence of nickel (REICHARD), A., ii, 245.
 estimation of, volumetrically (TAYLOR), A., ii, 696.
 estimation of, in presence of nickel (COPAUX), A., ii, 454.
 separation of manganese from nickel and (POZZI-ESCOL), A., ii, 107.

Cobalt ores from New Caledonia (KURNAKOFF and PODKOPIAÉFF), A., ii, 434.

Cobra poison (KYES and SACHS), A., ii, 444.

Cocacetin, **Cocacitin**, and their acetyl-derivatives, **Cocafavin**, **Cocafavetin**, and **Cocaose** and its osazone (HESSE), A., i, 191.

Coca leaves (HESSE), A., i, 191.

β -isoCocaic acid (HESSE), A., i, 192.

Cocaine hydrochloride, rotatory power of (IMBERT), A., i, 50.

r-Cocaine and its salts, crystallography of (WILLSTÄTTER and BODE), A., i, 361.

Coccus palmatus. See Calumba root.

Cocoa-nuts, composition of, and changes in, during germination (KIRKWOOD and GIES), A., ii, 172.

Codeine, conversion of, into methylthebaeo, morphothebaeine, and thebenine (KNORR), A., i, 849.
 oxidation products of (ACH and KNORR), A., i, 849.
 estimation of, in opium (VAN DER WIELEN), A., ii, 519.

Codeinecone and its salts and oxime (ACH and KNORR), A., i, 849.
 reactions of (KNORR), A., i, 849.

Cod liver oil, the iodine absorption number of (WIJS), A., ii, 250.

Coke, estimation of selenium in (SMITH), A., ii, 327.
 estimation of sulphur in (SUNDSTRÖM), A., ii, 326.

Collargol and **Collargolic acid** (HARIOT), A., ii, 368, 543, 597; (CHASSEVANT and POSTERNAK), A., ii, 478.

s-Collidine. See 2:4:6-Trimethylpyridine.

Colloidal solution (HARDY), A., ii, 469.
 solutions, precipitation of, by electrolytes (FREUNDLICH), A., ii, 532.
 metallic hydroxides. See Metallic hydroxides.
 solutions. See under Metallic solutions.

metals. See Copper, Gold, Mercury, Palladium, Platinum Silver, and Zirconium.

Colloids, physical changes in the condition of (PAULI), A., i, 299.

Colophony, detection of small quantities of, in naphthalene (HODUREK), A., ii, 366.

Colour of ions (PFLÜGER), A., ii, 628.

Colours of iodine solutions, probable cause of the different (LACHMAN), A., ii, 283.

Colour changes observed in some cobalt salts (HARTLEY), T., 401; P., 49.
 shown by mercuric iodides at different temperatures (GERNEZ), A., ii, 428.

Coloured substances derived from nitro-compounds (JACKSON and EARLE), A., i, 339.

Colouring matter, $\text{C}_{17}\text{H}_{12}\text{O}_6$, from the Japanese dyestuff "fukugi" (PERKIN and PHIPPS), P., 284.
 $\text{C}_{18}\text{H}_{15}\text{O}_6\text{N}_3\text{S}$, from 4-diazo-6-nitro-m-xylene-5-sulphonic acid and β -naphthol (JUNGHAHN), A., i, 23.
 $\text{C}_{19}\text{H}_{14}\text{O}_9$, and its acetyl and benzoyl derivatives (SOSTEGNI), A., i, 48.
 natural (PERKIN and PHIPPS), P., 284.
 ionic phenomena exhibited by (GREEN), A., i, 34.
acridine, yellow (BADISCHE ANILIN- & SODA-FABRIK), A., i, 776.
 preparation of a (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 584.

diaminoacridine, asymmetric alkylated (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 518.

aniline, chemical relations between proteids and (HEIDENHAIN), A., i, 586.

of *Chelidonium majus*, and of *Stylophorum diphyllum* (SCHLOTERBECK), A., i, 193.

blue, from the fins of *Crenilabrus pavo* (v. ZEYNEK), A., i, 304.

Colouring matter from the condensation of aromatic *m*-diamines with chloroform (WEINSCHENK), A., i, 281.
 from diazotised aminophenyl *p*-tolyl sulphide (v. MEYER and HEIDUSCHKA), A., i, 809.
 from 4-diazo-*m*-xylene-5-sulphonic acid and its 6-nitro-derivative (JUNGHAHN), A., i, 23.
 blue, of the diphenylnaphthylmethane series (MARON), A., i, 826.
 from formazyl derivatives (FICHTER and FROHLICH), A., i, 722.
 of the red grape (SOSTEGNI), A., i, 48.
 of the figure in the Grotto at La Mouthe (MOISSAN), A., ii, 215.
 of indigo, constitution of (MAILLARD), A., i, 761.
 indole, from the condensation of 2-methylindole with aldehydes (FREUND and LEBACH), A., i, 278.
 nitrosophenol (DECKER and SOLO-NINA), A., i, 838.
 colour reactions of (DECKER, SOLO-NINA, and GADOMSKA), A., i, 839.
 from ox-bile (LOEBISCH and FISCHLER), A., i, 713.
 phenolic, reaction of (PERKIN and WILSON), T., 129.
 from protocatechuic aldehyde (LIEBERMANN), A., i, 860.
 sulphur, preparation of (KALLE & CO.), A., i, 868.
 blue sulphur (CLAYTON ANILINE Co.), A., i, 778.
 from *as*-tetramethylidiaminophenyl-diphenylenemethane (GUYOT and GRANDERYE), A., i, 748.
 crystalline, from urine (COTTON), A., i, 217.
 from Russian "white pitch" (TSCHIRCH and KORITSCHONER), A., i, 107.
 See also Azo-dyes.

Colouring matters. See also :—
 Alkaverdin.
 Bilipurpurin.
 Brazilin.
 Butein.
 Carminic acid.
 Catechin.
 Chlorophyll.
 Curcumin.
 Daphnetin.
 Galangin.
 Gallein.
 Dimethylindigotins.
 Hæmatoxylin.
 Hæmerythrin.
 Hæmocyanin.
 Hæmoglobin.

Colouring matters. See :—
 Hemi-indigotin.
 Hesperitin.
 Indigotin.
 Indirubin.
 Isatin.
 Kampheride.
 Kampherol.
 Lipochrome.
 Mesoporphyrin.
 Methylindigotins.
 Morin.
 Myricetin.
 Quercetin.
 Urobilin.
 Urochrome.
Columbite (*niobite*), from the Caucasus in Batoum (TSCHERNIK), A., ii, 158.
Combustibility, limits of (PELET and JOMINI), A., ii, 130.
Combustion, the mechanism of (ARMSTRONG), T., 1088 ; P., 201.
 of carbon in reductions by calcium carbide (v. KUGELGEN), A., ii, 475.
 of carbon, platinum crucible for (STEHMAN), A., ii, 452.
 in gaseous mixtures other than air (PELET and JOMINI), A., ii, 283.
 processes, apparatus for slow (BONE and WHEELER), T., 1076 ; P., 191.
Compounds, containing nitrogen and sulphur, heats of formation of (DELÉPINE), A., ii, 269.
Compressibility coefficient of mercury, influence of pressure and temperature on the (CARNAZZI), A., ii, 714.
Conductivity, electrical. See under Electrochemistry.
 heat. See under Thermochemistry.
Condurang extract, identity test for (FIRBAS), A., ii, 459.
Congestin (RICHET), A., ii, 317.
Conspersaic acid (HESSE), A., i, 704.
Contact-metamorphism, chemical changes in (DALMER), A., ii, 224.
Contact-reactions, pyrogenetic, of organic compounds (IPATIEFF), A., i, 593, 594 ; (IPATIEFF and HUHN), A., i, 595 ; (IPATIEFF and LEONTOWITSCH), A., i, 598.
Coolgardite, non-existence of, as mineral species (SPENCER), A., ii, 378.
Coorongite, a South Australian elaterite (CUMMING), A., ii, 433.
Copals, constitution of (GUÉDRAS), A., i, 105.
 See also Resins.
Copper, occurrence of, in grape juice and wine (OMEIS), A., ii, 322.
 electrolytic deposition of (SMITH), A., ii, 334.
 boiling point of (FÉRY), A., ii, 293.

Copper, application of the phase rule to the melting point of (RICHARDS), A., ii, 266.

silicon, and manganese, equilibrium which exists between (LEBEAU), A., ii, 298.

hydrosol of (GUTBIER), A., ii, 82.

reaction between yellow phosphorus and, in aqueous solution (STRAUB), A., ii, 593.

influence of, in the silvering of glass (VIGNON), A., ii, 543.

reduced, combined hydrogen in (LEDUC), A., ii, 68, 202, 480 ; (GAUTIER), A., ii, 138, 202.

Cuprammonium compounds (BOUZAT), A., ii, 597.

sulphate (PÉCHARD), A., ii, 293.

sulphates, anhydrous (BOUZAT), A., ii, 21.

Copper alloys with aluminium, thermal study of (LUGININ and SCHÜKAREFF), A., ii, 271.

with cadmium (DENSO), A., ii, 293.

with magnesium (BOUDOUARD), A., ii, 78, 480.

Copper salts, decomposition curves of solutions of (HEIBERG), A., ii, 263 ; (ABEL), A., ii, 407.

reduction of, by hydroxylamine (PÉCHARD), A., ii, 293.

Copper arsenide (GRANGER), A., ii, 547.

periodates (GIOLITTI), A., ii, 211.

phosphides (GRANGER), A., ii, 547.

sulphate, electrolysis of, as a basis for acidimetry (LANGE), A., ii, 106.

sodium sulphate, preparation and solubility of (KOPPEL), A., ii, 78.

ammonium polysulphide (HOFMANN and HÖCHTLEN), A., ii, 728.

Cupric chromate (GRÖGER), A., ii, 647.

Cuprous oxide, ammoniacal, oxidation of (MEYER), A., ii, 78.

sulphate and its compound with carbon monoxide (JOANNIS), A., i, 371.

Copper acetylide, colloidal (KÜSPERT), A., i, 406.

cyanide, double salts of, with sodium cyanide (GROSSMANN), A., ii, 476.

Copper, assay of, by the iodide method (LOW), A., ii, 334.

estimation of, iodometrically, as cuprous xanthate (RUPP and KRAUSS), A., ii, 106.

estimation of, volumetrically, by means of potassium xanthate (ODDO), A., ii, 758.

separation of, from bismuth (RIEDER), A., ii, 762.

Copper ores (STEVANOVIC), A., ii, 301.

argentiferous, from Mexico (Fitz-PATRICK), A., ii, 300.

Copper pellicles obtained by ionoplastics, action of iodine on (HOULLEVIGUE), A., ii, 597.

Copper spirals, catalytic reactions caused by (TRILLAT), A., ii, 589.

Condensations in presence of metals and their chlorides (BAKUNIN), A., i, 818.

Cooling and stirring apparatus (PLANCHER), A., ii, 722.

Corn-cockle, detection of, in flour (MEDICUS and KOBER), A., ii, 251.

Corydaline, relation between absorption spectra and the chemical constitution of, berberine, and other alkaloids (DOBIE and LAUDER), T., 605 ; P., 7.

Corynocarpin from the fruit of the karaka tree (EASTERFIELD and ASTON), P., 191.

Cotarnine, constitution of (DOBIE, LAUDER, and TINKLER), T., 598 ; P., 75.

constitution of, and its derivatives (FREUND and BECKER), A., i, 572.

relative strengths of the alkaline hydroxides and of ammonia as measured by their action on (DOBIE, LAUDER, and TINKLER), P., 280.

Cotton seed oil, Halphen's test for (SJOLLEMA and TULLEKEN), A., ii, 47 ; (FULMER), A., ii, 249.

Coumaran and its homologues, synthesis of (STOERMER and GÖHL), A., i, 848.

Coumaranyl-1-methylcarbinol and its phenylurethane (STOERMER and SCHÄFFER), A., i, 847.

Coumarin, 4-hydroxy-, and its 6:8-dichloro-, and their -3-carboxylic acids, ethyl esters (ANSCHÜTZ), A., i, 270.

Coumarone-tar, truxene from (KRAEMER), A., i, 332.

Coumaryl-1-methylcarbinol and its phenylurethane (STOERMER and SCHÄFFER), A., i, 847.

Cows, effect of some mineral substances on (SCHULTE-BÄUMINGHAUS), A., ii, 569.

Cream of tartar. See Tartaric acid, potassium hydrogen salt.

Creatine, estimation of nitrogen in, by Kjeldahl's method (KUTSCHER and STEUDEL ; SCHÖNDORFF), A., ii, 687 ; (BEGER, FINGERLING, and MORGEN), A., ii, 753 ; (MALFATTI), A., ii, 754.

Crenilabrus pavo, blue colouring matter from the fins of (v. ZEYNEK), A., i, 304.

Creosote, assay of, by means of glycerol and water (MICHONNEAU), A., ii, 338.

Cresols, *m*- and *p*-, separation of (FIRMA RUD. RUTGERS), A., i, 479, 555.

***p*-Cresol**, chloro-derivatives, and their acyl derivatives, and the action of nitric acid on (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 756.

3-chloro-5-amino-, and its diacetyl compound, and the action of chlorine on, and 3-chloro-5-nitro-, and its salts, methyl ether and acetate (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 759.

***p*-Cresolketochlorides**. See Ketodihydrotoluenes.

Cresotic acids. See Toluic Acids, hydroxy-.

Cress, Para, constituents of (GERBER), A., ii, 609.

Cress seed oil (WIJS), A., i, 602.

Cretinism in calves (SELIGMANN), A., ii, 443.

Critical constants of some organic compounds (VESPIGNANI), A., i, 545.

density (TRAUBE), A., ii, 637.

magnitudes, relation between, and heat of vaporisation (BATSCHINSKI), A., ii, 409.

phenomena, the gaseous liquid state (SCHUKAREFF), A., ii, 710.

law of the rectilinear diameter (BATSCHINSKI), A., ii, 10.

of partially miscible liquids (KUENNEN), A., ii, 410.

solution temperature, physical constants, and osmotic pressure (CRISMER), A., ii, 10.

states of a binary system (SAUREL), A., ii, 132.

Crotin-immunity (JACOBY), A., ii, 674.

Crotonaldazine and its salts and polymeride, and its conversion into 5-methylpyrazoline (HLADÍK), A., i, 740.

Croton-chloral, influence of blood-gases on (LIVON), A., ii, 161.

Crotonic acid and its ethyl ester, and *iso*Crotonic acid, action of nitrogen peroxide on (EGOROFF), A., i, 790.

Crotonic acid, β -amino-, ethyl ester, action of nitrous acid on (v. EULER), A., i, 234.

δ -hydroxy-, esters, acyl derivatives of (BOUVEAULT and BONGERT), A., i, 63, 64.

Percrotonic acid (CLOVER and RICHMOND), A., i, 397.

Crotonic anhydride and peroxide (CLOVER and RICHMOND), A., i, 397.

β -Crotonylphenylhydrazine (RUPE and METZ), A., i, 536.

Cryolites (BAUD), A., ii, 214.

Cryoscopic behaviour and constitution of solvents, relation between (AUWERS, MANN, and GIERIG), A., ii, 268.

notes (AUWERS and GIERIG), A., ii, 268.

Cryoscopy, studies on comparative (ROBERTSON), T., 1425; P., 223.

Crystalline form of iron and manganese carbides and silicides (SPENCER), A., ii, 373.

of radium bromide (RINNE), A., ii, 369.

Crystallisation, relation of temperature to velocity of (BORODOWSKY), A., ii, 357.

of haemoglobin (REICHERT), A., i, 543.

of sparingly soluble substances (DE SCHULTE), A., ii, 533.

Crystallisation constants of cryoscopic solvents (BRUNI and PADOA), A., ii, 715.

Crystallisation-velocity, molecular lowering of the, by the addition of foreign compounds (v. PICKARDT), A., ii, 66.

Crystallography of *r*-cocaine and ecgonine (WILLSTATTER and BODE), A., i, 361.

of some lichenic acids (KAPPEN), A., i, 175.

of some organic compounds (JAEGER), A., i, 240.

Crystals, variations of angles observed in (MIERS), A., ii, 472.

liquid (ROTARSKI), A., i, 869.

nature of (SCHENCK), A., ii, 137.

mixed, eutectic and transition points of (DUHEM), A., ii, 718.

hydrated, maxima and minima of the decomposition curves for (HOLLMANN), A., ii, 279.

of mercuric chloride and iodide (PADOA and TIBALDI), A., ii, 728.

of mercuric iodide and silver iodide (STEGER), A., ii, 482.

Crystal-violet, reduced, reaction of (CAUSSE), A., ii, 584.

ψ -Cumeneol-alcohol, preparation of (MANASSE), A., i, 28.

α -Cumuminic acid (SEMMLER), A., i, 353.

Cuminylidene-3-methylcyclohexanone, rotation of (HALLER), A., i, 564.

4-Cuminalisoquinoline. See 4-*p*-iso-Propylbenzylisoquinoline.

ψ -Cumylglycinyl ethyl urethane (FRERICHS and BREUSTEDT), A., i, 18.

β - ψ -Cumylhydantoin (FRERICHS and BREUSTEDT), A., i, 18.

Cupric and Cuprous salts. See under Copper.

Cupro-uranite, degree of hydration of (BUCHHOLZ), A., ii, 554.

Curcumin and its potassium salt (PERKIN and WILSON), T., 140.

formula of, and its benzoyl derivative (PERKIN and PHIPPS), P., 285.

Current. See under Electrochemistry.

Currents, demarcation, produced by chemical reagents on muscle (HENZE), A., ii, 163.

Cuttle-fish, oxydases in (GESSARD), A., ii, 441.

Cyanbenzyline (v. WALTHER), A., i, 582.

Cyanic acid, polymerisation of (KRONSTEIN), A., i, 80.

Cyanates, cyanides, thiocyanates, and sulphides, estimation and separation of (MILBAUER), A., ii, 392.

Cyanogen bromide, action of, on benzyl cyanide (v. BRAUN), A., i, 697.

action of, on methylene bases (v. BRAUN and RÖVER), A., i, 464.

action of, on tertiary nitrogen derivatives with a negative grouping (v. BRAUN), A., i, 610.

chloride, action of, on methylamine (KAESS and GRUSZKIEWICZ), A., i, 11.

iodide as an indicator for acids (KASTLE and CLARKE), A., ii, 683.

Hydrocyanic acid (*hydrogen cyanide*), amount of, in cigar smoke (HABERMANN), A., ii, 174; (THOMS), A., ii, 324.

presence of, in fodder-plants (BRÜNNICH), T., 788; P., 148.

presence of, in Sorghum (SLADE), A., ii, 233.

electrochemical synthesis of (GRUSZKIEWICZ), A., i, 327.

solubility, electrolytic conductivity and chemical action in liquid (KAHLENBERG and SCHLUNDT), A., ii, 57.

reactions involving the addition of, to carbon compounds (LAPWORTH), T., 995; P., 189.

poisonous effect of, on the catalysis of hydrogen peroxide by colloidal metals (LOEVENHART and KASTLE), A., ii, 415; (BÖCK), A., ii, 416.

estimation of, volumetrically (ANDREWS), A., ii, 695.

Cyanides, action of iron in the formation of (TÄUBER), A., i, 328.

cyanates, thiocyanates, and sulphides, estimation and separation of (MILBAUER), A., ii, 392.

Cyanuric acid, new compounds (DIELS and LIEBERMANN), A., i, 867.

Cyanuric acid, monothiol-, and its dimethyl derivative (DIELS and LIEBERMANN), A., i, 868.

Cyaphenine, *tri-p-hydroxy*. See 2:4:6-Triphenyl-1:3:5-triazine, *tri-p-hydroxy*.

Cyclamin and **Cyclamiretin** (PLZÁK), A., i, 643.

Cyprinus carpio, the mesenterial fat of (ZDAREK), A., ii, 499.

Cysteic acid and its salts (FRIEDMANN), A., i, 75.

Cystein, constitution of (FRIEDMANN), A., i, 75.

Cystin (PATTEN), A., i, 792.

synthesis of (ERLENMEYER), A., i, 791.

constitution of (FRIEDMANN), A., i, 75.

change of, into taurine in the organism (v. BERGMANN), A., ii, 665.

reaction of (RIZA), A., ii, 460.

Cystin diathesis in families (ABDERHALDEN), A., ii, 564.

Cystinhydantoic acid and its salts (FRIEDMANN), A., i, 75.

Cytosine and its salts (KOSSEL and STEUDEL), A., i, 303, 451, 667; ii, 311; (LEVENE), A., i, 375, 668; (WHEELER and JOHNSON), A., i, 526.

preparation of (KUTSCHER), A., i, 668.

D.

Dammar wood oil (HAENSEL), A., i, 187.

Daphnetin and its potassium salt (PERKIN and WILSON), T., 134.

Datura oil (HOLDE), A., i, 140.

Decacyclene. See **Trinaphthylenebenzene**.

Decane- α -diol (BOUVEAULT and BLANC), A., i, 731.

Decarbonised substances, estimation of iron, phosphoric and hydrochloric acids in (NEUMANN), A., ii, 243.

Decarbousnic acid, formula of, and its salts and anilide (WIDMAN), A., i, 96.

Decarbousnole, formula of, and its acetyl derivative (WIDMAN), A., i, 97.

Decarburisation of steel and of thin metallic plates by evaporation under reduced pressure (BELLLOC), A., ii, 484.

α-Decinoic acid (*heptylpropionic acid*), and its esters (MOUREU and DELANGE), A., i, 313.

Decocacetin (HESSE), A., i, 192.

Decoic acid (*α-methylnonoic acid*), and its amide (GUERBET), A., i, 62.

Decomposition. 'See Affinity.

Decoylacetic acid, ethyl ester and its copper salt (MOUREU and DELANGE), A., i, 400.

Decyl alcohol (*dimethylheptylcarbinol*) (HOUBEN), A., i, 48.

Decyl alcohol (*γ-methylnonanol*) (BOUVEAULT and BLANC), A., i, 730.

Decyl alcohol (*β-methylnonyl alcohol*), and its acetate (GUERBET), A., i, 61.

Decyl alcohol (*tripropylcarbinol*) (GRIGNARD), A., i, 455.

Deen's, van, reaction (TARUGI), A., ii, 460.

Delphocurarine from Delphiniums (HEYL), A., i, 650.

Denitrification (VOORHEES), A., ii, 35.

Density in relation to chemical composition and constitution; halogenated compounds; sulphur compounds (KANONNIKOFF), A., ii, 11.

of nitric oxide (GRAY), P., 66.

of solutions of some carbon compounds (SPEYERS), A., ii, 64.

of small quantity of substance, volumenometer for the determination of the (ZEHNDER), A., ii, 198.

of sulphuric acid, influence of impurities on the (MARSHALL), A., ii, 205.

of water-alcohol mixtures, variations in (VITTENET), A., i, 221.

See also Vapour density.

Deoxybenzoin and its diamino- and dihydroxy-derivatives and their acetyl derivatives (ZINCKE and FRIES), A., i, 182.

action of *m*-nitrobenzaldehyde on (RUHEMANN), T., 1377; P., 247.

Deoxybenzoin, *p*-chloro-, and *p*-chloro-*a*-cyano-, and the oxime of the chlorocyanoo-derivative, and chloroiminoacyano- (v. WALTHER and HIRSCHBERG), A., i, 494.

di-p-hydroxy-, and its diacetate (ZINCKE and FRIES), A., i, 182.

Deoxybenzoiccarboxylic acid, *p*-chloro-, and its oxime, phenylhydrazone, esters, and amide (v. WALTHER and HIRSCHBERG), A., i, 495.

Deoxybilanic acid, dichloro- (PREGL), A., i, 318.

Deoxycholic acid, isolation of, and its oxidation products (PREGL), A., i, 318.

Derris uliginosa, chemistry of the stem of (POWER), A., ii, 323.

Desmotroposantoina. See under Santonin.

Destrietic acid (ZOPF), A., i, 763.

Desylacetic acid (JAPP and MICHIE), T., 283; P., 21.

α-Desylisobutyric acid (JAPP and MICHIE), T., 308.

α-Desylenepropionic acid (JAPP and MICHIE), T., 279; P., 21.

α-Desylpropionic acid (JAPP and MICHIE), T., 299.

Dextrin iodides, relation of hydriodic acid and its salts to (HALE), A., i, 151.

Dextrins, nomenclature of (SYNIEWSKI), A., i, 69.

Dextrinose (SYNIEWSKI), A., i, 70.

Dextrose (*d-glucose*; *grape sugar*), presence of, in the cephalorachid liquid (GRIMBERT and COULAUD), A., ii, 385.

production of, in animal tissues (CADÉAC and MAIGNON), A., ii, 675.

formation of, from the end products of pancreatic proteolysis (STILES and LUSK), A., ii, 668.

mutarotation of, as influenced by acids, bases, and salts (LOWRY), T., 1314; P., 156.

velocity of hydrolysis of (HERZOG) A., ii, 230.

equilibrium between maltose and (POMERANZ), A., ii, 65.

combustion of, in the organism, and the influence of the pancreas on it (COHNHEIM), A., ii, 738.

action of hydrogen peroxide on, in presence of ferrous sulphate (MORRELL and CROFTS), T., 1290; P., 208.

synthetical action of a maltase-containing yeast extract, of taka-diastase, and of pancreatic ferment on (HILL), T., 578; P., 99.

methyl ethers (PURDIE and IRVINE), T., 1021; P., 192; (PURDIE and BRIDGETT), T., 1037; P., 193.

compound of, with aluminium hydroxide (CHAPMAN), P., 74.

zinc compound of (v. GRABOWSKI), A., i, 606.

detection of maltose in presence of (GRIMBERT), A., ii, 338.

estimation of, densimetrically, in urine (LOHNSTEIN), A., ii, 187.

Diabetes (*glycosuria*), acetone in (LE GOFF), A., ii, 675.

haemochromatosis in (BEATTIE), A., ii, 675.

adrenaline (NOËL PATON), A., ii, 443.

experimental and phloridzin (SPIRO and VOGT), A., ii, 228.

Diabetes, phloridzin (PAVY, BRODIE, and SIAU), A., ii, 501; (STILES and LUSK), A., ii, 675.
 influence of camphor on the excretion of dextrose in (JACKSON), A., ii, 316.
 respiration in (MENDEL and LUSK), A., ii, 674.

Diacet-. See also Diacetyl-, and under the parent Substance.

Diacetone alcohol, oxime of, and its reduction (KOHN and LINDAUER), A., i, 73.

Diacetoneamine, oxidation of (BAMBERGER and SELIGMAN), A., i, 323.

Diacetonehydroxylamine, ketonic nature of, and its phenylhydrazone (HARRIES and FERRARI), A., i, 320.

Diacetoxo-. See also under the parent Substance.

5:10-Diacetoxo-1:2:7:8-tetramethoxybrazan (v. KOSTANECKI and ROST), A., i, 646.

5:10-Diacetoxo-2:7:8-trimethoxybrazan (v. KOSTANECKI and LLOYD), A., i, 646.

Diacetyl-. See also Diacet-, and under the parent Substance.

Diacetyl, condensation of, with ethyl oxalate (DIELS), A., i, 400.
 polymeride of, ketone $C_8H_{14}O$, from the reduction of the (DIELS and JOST), A., i, 427.

Diacetylmonoacetylhydrazone methyl ether (DIELS and VOM DORP), A., i, 862.

4:6-Diacetyl-m-cresol and its dioxime (KNOEVENAGEL), A., i, 638.

2:4-Diacetyl-2:4-dimethyl-1-methylcyclohexenone-5 and its dioxime (KNOEVENAGEL), A., i, 639.

Diacyldimethylpyrazine and its semicarbazone (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 210.

Di-o-acetylhydrazobenzene. See Methylantranil.

2:4-Diacetyl-1-methylcyclohexenone-5 (KNOEVENAGEL), A., i, 638.

2:4-Diacetyl-1-4-methylol-1-methylcyclohexenone-5 (KNOEVENAGEL), A., i, 639.

3:5-Diacetyl-4-methylpyrazole and its dioxime (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 209.

Diacylorthonitric acid, formula of (PICTET and GENEQUAND), A., i, 675.

2:4-Diacetyl-3-phenyl-1-methylcyclohexenone-5 (KNOEVENAGEL), A., i, 637.

3:5-Diacetyl-4-phenylpyrazole (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 209.

Diacetylphenylurazole (WHEELER and JOHNSON), A., i, 693.

Diacetylsuccinic acid, ethyl ester, action of hydrazine hydrate on (BÜLOW and v. KRAFFT), A., i, 196.

Dialkylacetic acids, ureides of (GEBRÜDER VON NIESSEN), A., i, 798.

B₂-Dialkylhydroxylamines, preparation of (WIELAND), A., i, 686.

2:4-Dialkylsemicarbazides and their intramolecular transformations (BUSCH and FREY), A., i, 537.

Diallage from Naměst, Moravia (KOVÁČ), A., ii, 557.

Diallylitoluidines (MENSCHUTKIN and SIMANOWSKY), A., i, 750.

Dialysis. See under Diffusion.

Diameter, law of the rectilinear (BATSCHINSKI), A., ii, 10.

"Diamine-gold" (MEYER and MAIER), A., i, 870.

Diamines from phellandrene nitrates, and their benzoyl derivatives (WALLACH and BÖCKER), A., i, 105.

m-Diamines, aromatic, condensation of, with chloroform (WEINSCHENK), A., i, 281.

Diamonds, fluorescence and phosphorescence of, and their influence on the photographic plate (ROSENHEIM), A., ii, 123.
 temperature of, and the combustion of, in oxygen (MOISSAN), A., ii, 141.
 transformation of, into charcoal during oxidation (BERTHELOT), A., ii, 142.
 artificial, preparation of (v. HASSSLINGER), A., ii, 142.

Diosoamylamine ferri- and ferro-cyamides (CHRÉTIEN), A., i, 155.

Diamylsulphone-ethane, -methane, and -phenylmethane (POSNER and HAZARD), A., i, 242.

1:5-Dianilinoanthraquinone, and *di-p*-hydroxy- and *di-p*-nitro- (KAUFLE), A., i, 427.

Dianilinodibromo-*o*-benzoquinone and its additive compounds (JACKSON and PORTER), A., i, 102.

Dianilinobromo-*p*-benzoquinone anil (JACKSON and PORTER), A., i, 102.

Dianilinotetrachlorostilbenequinone (ZINCKE and FRIES), A., i, 181.

Dianilinoglyoximedimethylmalonylic acid and *di-p*-chloro-, methyl esters (PERKIN), T., 1222.

2:6-Dianilino-4-methyl-5-ethylpyrimidine (BYK), A., i, 658.

Dianisidine, diazonium salt, action of heat on (CAIN), T., 692; P., 136.

Dianisyldihydrazone-oxalacetic acid, ethyl ester (RABISCHONG), A., i, 56.

Dianisyldiphenyltetrazoline (BAMBERGER and PEMSEL), A., i, 284, 286.

Dianisyldiene-3-methylcyclohexanone, rotation of (HALLER), A., i, 564.

Dianisylidenephenoxyacetone (STOERMER and WEHLN), A., i, 41.

Diaphragms, behaviour of, in the electrolysis of salt solutions (HITTOFF), A., ii, 406.

Diastase from Amœbæ (MOUTON), A., ii, 36.

supposed lactic, which decomposes salol (DESMOULIÈRES), A., ii, 312, 667 ; (MIELE and WILLEM), A., ii, 604.

malt, action of, on potato starch paste (DAVIS and LING), P., 275.

Diastases, general theory of the action of certain (HENRI), A., ii, 135.

hydrolytic, influence of the stereochemical configuration of glucosides on the activity of (POTTEVIN), A., i, 378 ; ii, 230.

rôle of oxidising, in the preparation of tea, and their influence on sumach leaves (Asò and Pozzi-Escot), A., ii, 322.

Diastatic action, influence of carbon dioxide on (MOHR), A., i, 377.

Diazoacenaphthylene (FRANCESCONI and PIRAZZOLI), A., i, 501.

Diazoacetoacetic acid, ethyl ester, anhydride of (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 203.

Diazoacetylacetone, anhydride of (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 204.

Diazoamino-benzene, 2:2-dichloro- (v. NIEMENTOWSKI), A., i, 133.

o-Diazoamino-benzoic acid (v. NIEMENTOWSKI), A., i, 133.

Diazoamino-compounds, limits of the formation of (v. NIEMENTOWSKI and WICHROWSKI), A., i, 133.

equilibrium of the isomeric forms of (VAABEL), A., i, 299.

Diazo-anhydrides (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 203.

Diazobenzene salts. See Diazonium salts.

Diazobenzenemethylamine (DIMROTH), A., i, 450.

Diazobenzoylacetone, anhydride of (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 204.

Diazo-compound, $C_{16}H_{14}O_5N_2$, from α -phenyl-2-amino-3-hydroxy-4-methoxy-cinnamic acid (PSCHORR and VOGTHERR), A., i, 184.

Diazo-compounds (HANTZSCH and WECHSLER), A., i, 210.

Diazo-compounds, rate of decomposition of (CAIN and NICOLL), T., 206.

influence of temperature on the rate of decomposition of (CAIN and NICOLL), T., 470 ; P., 63.

new decompositions of (BIEHRINGER and BUSCH), A., i, 296.

migration of atoms in (HANTZSCH), A., i, 665.

relation between, and nitroso-compounds and diazo-ethers (HANTZSCH and WECHSLER), A., i, 210.

reduction of (HANTZSCH and VOCH), A., i, 664.

Diazo-ethers, decomposition of (HANTZSCH), A., i, 869.

hydrolysis of (HANTZSCH and WECHSLER), A., i, 210 ; (v. EULER), A., i, 722.

relation between diazo-compounds, nitroso-compounds and (HANTZSCH and WECHSLER), A., i, 210.

Diazo-group, replacement of, by the amino-group (WACKER), A., i, 132.

Diazo-hydroxides (diazo-hydrates), constitution of (HANTZSCH), A., i, 212.

Diazomethane (WEGSCHEIDER and GEHRINGER), A., i, 685.

Diazonaphthalene chlorides, α - and β -, rate of decomposition of (CAIN and NICOLL), T., 208.

Diazonaphthalenesulphonic acids, and 8-hydroxy-, rate of decomposition of (CAIN and NICOLL), T., 210.

Diazonium (benzenediazonium) chloride, interaction of, with zinc ethyl (BAMBERGER and TICHWINSKY), A., i, 131 ; (TICHWINSKY), A., i, 441.

trüido- (HANTZSCH), A., i, 665.

acid fluoride and its bromo- and nitro-derivatives (HANTZSCH and VOCH), A., i, 664.

hydroxides, the conditions influencing the interchange of halogen and hydroxyl in (ORTON), T., 796 ; P., 161 ; A., i, 297.

salts, rate of decomposition of (v. EULER), A., i, 298.

decomposition of, with phenols (NORRIS, MACINTYRE, and CORSE), A., i, 372.

interaction of, with alcohols (HANTZSCH and VOCH), A., i, 664.

interaction of, with santonin derivatives (WEDEKIND and SCHMIDT), A., i, 542 ; (FRANCESCONI), A., i, 830.

s-tribromo- and s-trichloro- (ORTON), A., i, 297.

Diazoniumazide (benzenediazoniumazide), p -nitro- (HANTZSCH), A., i, 663.

Diazophenols. See Quinonediazides.

6-Diazophenol-4-sulphonic acid, 2-nitro- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 665.

Diazo-reaction in the diphenyl series (CAIN), T., 688 ; P., 136.

Diazotisation of difficultly diazotisable amines (SEIDLER), A., i, 868.

of hydrazine (BETTI), A., i, 78.

Diazotoluene-nephylhydrazine (STOLLÉ), A., ii, 101.

Diazoxides (*diazotates*), constitution of (HANTZSCH), A., i, 212.

mechanism of Friedländer's reaction for converting, into hydrocarbons (EIBNER), A., i, 447.

4-Diazo-m-xylene-5-sulphonic acid, and 6-nitro-, and their reactions with alcohols (JUNGHAHN), A., i, 22.

Dibenzenyl-2:5-disulphydro-p-diaminobenzene (GREEN and PERKIN), T., 1207 ; P., 206.

Dibenzoxy-. See also under the parent Substance.

Dibenzoxybenzylidenemalonic acid (HAYDUCK), A., i, 827.

Dibenzoyl-. See also under the parent Substance.

Dibenzoylbenzidine (BIEHRINGER and BUSCH), A., i, 296.

Dibenzoylcafeic acid and its ethyl ester (HAYDUCK), A., i, 827.

Dibenzoylmethane, compound of, with silicon chloride and its double salts (DILTHEY), A., i, 592.

Dibenzoylmorpholinone (PSCHORR, JAECKEL, and FECHT), A., i, 194.

Dibenzoylphenylaminoguanidine (WHEELER and BEARDSLEY), A., i, 294.

α -Dibenzoyl- β -phenyl- α -dimethylpropane, preparation of (ABELL), T., 364 ; P., 17.

Dibenzoylethyl- ψ -semithiocarbazide (WHEELER and BEARDSLEY), A., i, 294.

α -Dibenzoyl- β -phenyl- α -methylpropane and its dioxime, preparation of (ABELL), T., 362 ; P., 17.

α -Dibenzoyl- β -phenylpropane and its dioxime, preparation of (ABELL), T., 364 ; P., 17.

Dibenzoylethyl- p -tolylaminoguanidine (WHEELER and BEARDSLEY), A., i, 294.

Dibenzyl carbonate (BISCHOFF and v. HEDENSTRÖM), A., i, 26 ; (BISCHOFF), A., i, 261.

tetrachlorodihydroxy-, and its diacetate (ZINCKE and FRIES), A., i, 180.

Dibenzyl-acetoacetic and -acetic acids, *di-p*-nitro-, ethyl esters (ROMEO), A., i, 260.

Dibenzylacetone, action of sulphuric acid monohydrate on (VORLÄNDER and SCHROEDTER), A., i, 496.

2:8-Dibenzylamino-3:7-dimethylacridine and its disulphonic acid (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 584.

s-Dibenzyletetraaminoditolylmethane (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 584.

Dibenzylcyanoacetic acid, *di-p*-nitro-, ethyl ester, and amide (ROMEO), A., i, 260.

Dibenzylcyanoacetoino-ether, *di-p*-nitro- (ROMEO), A., i, 260.

Dibenzylidihydrotetrazine, *di-p*-amino- and its diazotisation (JUNGHAHN and BUNIMOWICZ), A., i, 181.

α -Di-*o*-benzylene-pyridine, synthesis of, and its salts (ERRERA), A., i, 855.

α -Di-*o*-benzylol- and -benzylene-pyridines, and the dioxime of the ketone, preparation of (ERRERA), A., i, 855.

N-Dibenzyl-S-ethylidithiouethane (v. BRAUN), A., i, 14.

Dibenzylformal (DESCUDÉ), A., i, 168.

Dibenzyl-hydroxylamine and -urethane (v. BRAUN), A., i, 611.

s-Dibenzylhydroxylhydrazine and its hydrochloride, acyl and nitroso-derivatives (DARAPSKY), A., i, 369.

Dibenzylideneacetone, action of sulphuric acid and acetic anhydride on (VORLÄNDER and SCHROEDTER), A., i, 496.

compound of, with hydrogen chloride (VORLÄNDER and MUMME), A., i, 495 ; (THIELE and STRAUS), A., i, 707.

di- and *tetra*-bromide (GROEBEL), A., i, 497.

Dibenzylideneacetone, *di*hydroxy-, and its salts, acetate and isomeride (ZINCKE and MÜHLHAUSEN), A., i, 265.

Dibenzylideneacetoneimine hydrochloride (RUHEMANN), T., 379 ; P., 50.

Dibenzylidene-cyclopentanone, *diamino-* and dinitro-derivatives (MENTZEL), A., i, 497.

di-p-hydroxy-, and its *dibenzoate* (MENTZEL), A., i, 497.

Dibenzylidene-phenoxyacetone (STOERMER and WEHLN), A., i, 41.

Dibenzylidene-trimethyl- α -pyridyl ketone (C. and A. ENGLER), A., i, 113.

Dibenzylmalononitrile, *di-p*-nitro- (ROMEO), A., i, 260.

Dibenzyl- α -naphthylamine, *di-o*-nitro- (DARIER and MANNASSEWITCH), A., i, 82.

Dibenzylresorcinol sulphate, diamino- (FRIEDLANDER and v. HORVATH), A., i, 253.

as-Dibenzylsulphone-ethane (POSNER and HAZARD), A., i, 243.

Dibenzyltetraazine, *di-p*-amino-, and its diacetyl derivative (JUNGHAHN and BUNIMOWICZ), A., i, 131.

α-Dibenzylthiolpropionic acid (POSNER and HAZARD), A., i, 243.

Diborneolamine and its sulphate, and **Diborneonitrosoamine** (EINHORN and JAHN), A., i, 44.

Disobutylaminoacetic acid, 2-methoxy-phenyl ester, and its salts (EINHORN and HUTZ), A., i, 90.

Dibutylresorcinol and its isomeride and their diacetates (GUREWITSCH), A., i, 27.

Di-*n*- and -*iso*-butyramides (TARBOURIECH), A., i, 681.

Dicamphanylamine, 1:1-dihydroxy-. See Diborneolamine.

Dicampheneisopyrazine and its mercurichlorides, methiodide, and picrate (EINHORN and JAHN), A., i, 44.

Dicamphor pinacone (MALMGREN), A., i, 711.

Dicamphorylamine and its hydrochloride and sulphate and **Dicamphorylnitrosoamine** (EINHORN and JAHN), A., i, 44.

Dicamphorylethylcarbinol (MALMGREN), A., i, 711.

Dicamphorylmethylcarbinol and its oxime (MALMGREN), A., i, 711.

α-Dicamphylic acid and its salts (PERKIN), T., 862.
dihydroxy-, and its silver salt and acetyl derivative (PERKIN), T., 864.

Dicarbo-base, Wessel's, reactions of (SCHALL), A., i, 201.

Dicarboxyaconic acid (*propylenepentacarboxylic acid*), methyl ester, and sodium and methylammonium derivatives (ANSCHUTZ), A., i, 550.

αδ-Dicarboxyadicpic acid (*butanetetracarboxylic acid*), *βγ*-diamino-, and the lactam of the *αδ*-dibromo-*αγ*-diamino-acid (TRAUBE), A., i, 76.

3:4-Dicarboxy-N-2:5-dimethylpyrryl-p-acetophenone, ethyl ester (BULOW and NOTTBOHM), A., i, 274.

3:4-Dicarboxy-N-2:5-dimethylpyrryl-p-benzoylpyruvic acid, ethyl ester (BULOW and NOTTBOHM), A., i, 275.

Dicentra Cucullaria, alkaloids of (FISCHER and SOELL), A., i, 193.

Dicentra formosa, alkaloids of (HEYL), A., i, 716.

Dichroism of mixed liquids, influence of temperature on the, and verification of the law of indices (MESLIN), A., ii, 585.

magnetic, of liquids as a means of classification (MESLIN), A., ii, 529.

magnetic and electric, of liquids (MESLIN), A., ii, 408.

spontaneous, of mixed liquids (MESLIN), A., ii, 521.

Dicresotides, *o*-, *m*- and *p*- (EINHORN and METTLER), A., i, 30.

Dicumyldiene-3-methylcyclohexanone, rotation of (HALLER), A., i, 564.

Dicumyldenedecyclopentanone (MENTZEL), A., i, 497.

Diecyclic compounds, stereochemistry of (JACOBSEN), A., ii, 68.

Didymium oxide, estimation of, by iodine (MEYER and Koss), A., ii, 45.

orthophosphate, absorption spectrum of (WAEGNER), A., ii, 729.

Dielectric constants. See Electrochemistry.

Diethanolhydrazine (KNORR and BROWNSDON), A., i, 154.

Diethenyl-2:5-disulphhydro-*p*-diaminobenzene (GREEN and PERKIN), T., 1206; P., 206.

Diethoxycyanuric chloride (DIELS and LIEBERMANN), A., i, 868.

1:3-Diethoxyphen-5-oxy-cinnamic and -fumaric acids, ethyl esters (RUHEMANN), T., 1134; P., 202.

Di-p-ethoxyphenylcyanuric chloride (DIELS and LIEBERMANN), A., i, 868.

3:5-Diethoxy-1-phenyl-4:5-dihydrotriazole (ACREE), A., i, 867.

Diethyl phosphite (LEVITSKY), A., i, 733.

Diethylacetooacetic acid, methyl ester, preparation of (GRIGNARD), A., i, 791.

Diethylamine, dithio- (v. BRAUN), A., i, 611.

Diethylaminoacetic acid, bornyl and methyl esters and their salts (EINHORN and JAHN), A., i, 351.

phenol esters, and their salts (EINHORN and HUTZ), A., i, 90.

α-Diethylaminoanthraquinone, 8-nitro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 499.

p-Diethylaminodiphenylamine-*m*-carboxylic acid, *p*-hydroxy- (CASSELLA & Co.), A., i, 860.

Diethylaminofluoran, mono- and trichloro- (FARBWERKE VORM. MEISTER, LUCIUS, & BRUNING), A., i, 509.

Diethylaminophenylmethylpyrazolone, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRUNING), A., i, 866.

p-Diethylaminophenyl-p-hydroxy-m-tolylamine (CASSELLA & Co.), A., i, 860.

Diethyltetraaminophenyl-o-tolylmethane (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 519.

CC-Diethylbarbituric acid (GEBRÜDER VON NIESSER), A., i, 799.

Diethylbenzylamidine, benzoyl derivative of, and its platinichloride (LANDER), T., 323; P., 16.

s-Diethylbenzidine and its diacyl derivatives and nitrosoamine (BAMBERGER and TICHWINSKY), A., i, 132.

and its dinitrosoamine and diacetyl and dibenzoyl derivatives (TICHWINSKY), A., i, 442.

Diethylbutenylbenzene (RIIBER), A., i, 471.

Diethyl-m-chloroaminoazobenzene-p-sulphonic acid and its barium salt (GOLDSCHMIDT and KELLER), A., i, 135.

Diethylhydroxylamine and its salts (WIELAND), A., i, 686.

Diethyl ketone, condensation of, with hypophosphorous acid (MARIE), A., i, 678.

Diethylmalonylcarbamide as a narcotic (FISCHER and v. MERING), A., i, 552.

Di-p-ethylphenyliodinium, and iodo-, hydroxides and salts (WILLGERODT and BERGDOLT), A., i, 745.

Diethyl-propionamide and -urethane (v. BRAUN), A., i, 611.

$\alpha\beta$ -Diethylsuccinic acid (*hexanedicarboxylic acid*), phenyl ester (BISCHOFF and v. HEDENSTRÖM), A., i, 86.

1:4-Diethyl-2-vinylbenzene (KLAGES and KIEL), A., i, 553.

DIFFUSION :-

Diffusion, a consequence of the kinetic theory of (THÖVERT), A., ii, 13.

Dialysis experiments with metallic hydroxides (HERZ), A., ii, 62.

Osmotic pressure (SMITS), A., ii, 530. physical constants, and critical solution temperature (CRISMER), A., ii, 10.

and negative pressure, relation between (HULETT), A., ii, 133.

deduction of the magnitude of, in dilute solutions according to the kinetic theory (FIREMAN), A., ii, 133.

of a solution of variable density (PLANCK), A., ii, 272.

Digestibility of carbohydrates (WEISER and ZAITSCHEK), A., ii, 225.

of pentosans (WEISER), A., ii, 507.

of vegetables (BRYANT and MILNER), A., ii, 739.

Digestion in the stomach and small intestine (ZUNZ), A., ii, 159.

of gelatin (LEVENE and STOOKEY), A., ii, 308.

of nitrogen, effect of muscular activity on the (WAIT), A., ii, 308.

of proteids by the pancreas ferment (FISCHER and ABDERLAHDEN), A., ii, 666.

pancreatic, influence of the autolytic ferment on (HALPERN), A., ii, 738.

peptic, influence of manganese and iron on (COHN), A., ii, 166.

end-products of (SALASKIN and KOWALEWSKY), A., ii, 559;

(LANGSTEIN), A., ii, 670.

proteid, in man (HEINRICH; LEVENE and STOOKEY), A., ii, 309.

in the stomach (GLAESNER), A., ii, 85.

salivary, in the stomach (CANNON and DAY), A., ii, 308, 667.

tryptic, influence of antiseptics on (KAUFMANN), A., ii, 743.

influence of hydroxylionson (KANITZ and DIETZE), A., ii, 160.

behaviour of serum towards (OPPENHEIMER and ARON), A., ii, 738.

influence of, on precipitation reactions (OPPENHEIMER), A., ii, 665.

See also Stomach.

Autodigestion, pancreatic, new product of (BAUM; SWAIN), A., ii, 225.

Digitalin, estimation of, in official preparations of digitalis and digitalin (ECALLE), A., ii, 344.

Digitalis leaves, evaluation of (ZIEGENBEIN), A., ii, 118.

$\alpha\alpha$ -Diglutaric acid, synthesis of (SILBERRAD and EASTERFIELD), P., 38.

Diglycylglycine (FISCHER and OTTO), A., i, 608.

and its ethyl ester (FISCHER), A., i, 799.

Diglycylglycineamidecarboxylic acid and its ethyl ester (FISCHER), A., i, 466.

Diglycylglycinecarboxylic acid, esters (FISCHER), A., i, 466.

Dihydroiso-apiole and -safrole, dibromo- α -hydroxy-, and its acyl, methoxy, and ethoxy derivatives (POND and SIEGFRIED), A., i, 417.

Dihydrobenzene, dibromo- (CROSSLEY and HAAS), T., 504; P., 75.

$\Delta^{2,4}$ -Dihydrobenzene, 3:5-dichloro- (CROSSLEY and HAAS), T., 495; P., 75.

Dihydrobenzenes, $\Delta^{1,3}$ - and $\Delta^{1,4}$, preparation of (HARRIES and ANTONI), A., i, 614.

Dihydrocamphene, nitration of, and amino-, and its salts and acyl derivatives, and bromonitro- (KONOWALOFF and KIKINA), A., i, 269.

r-**Dihydrocampholene**, *α*-amino-, and its oxamide, picrate and carbamide (BLANC and DESFONTAINES), A., i, 565.

Dihydrocampholenesultonecarboxylic acid, bromo-, and its methyl and ethyl esters (HARVEY and LAPWORTH), T., 1110; P., 148.

Dihydro- β -campholenetrtrimethylammonium hydroxide, iodide, and platinichloride (BOUVEAULT and BLANC), A., i, 613.

r-*α*-**Dihydrocampholenic acid** and its amide (BLANC and DESFONTAINES), A., i, 565.

Dihydro- β -campholytic acid, dibromo-, esters (PERKIN), T., 860.

Dihydro- $α$ -camphylic acid, trihydroxy-, and its salts and monoacetate (PERKIN), T., 855.

Dihydro- $α$ - and - $β$ -camphylic acids, bromo-derivatives (PERKIN), T., 840.

Dihydrocarboxide and its dibromide (SEMMLER), A., i, 353.

Dihydrocarvylamine, new *p*-menthadiene from (HARRIES), A., i, 748.

Dihydroisocaryophyllene (SEMMLER), A., i, 505.

Dihydro-*m*-cymene (HARRIES and ANTONI), A., i, 615.

Dihydrolimonene (SEMMLER), A., i, 505.

$Δ^1$ -**Dihydro- $α$ -naphthoic acid**, menthyl ester, and its rotation (RUPE, LOTZ, and SILBERBERG), A., i, 566.

$Δ^2$ -**Dihydro- $α$ -naphthoic acid**, menthyl ester, and its rotation (RUPE and SILBERBERG), A., i, 567.

Dihydro-*m*-nitrophenylhydropyrimidone. See Diphenyldihydropyrimidone, *m*-nitro.

Dihydrophellandrene (SEMMLER), A., i, 505.

Dihydroisophoronecarboxylic acid (FARBWERKE VORM. MEISTER, LUCIUS, & BRUNING), A., i, 502.

Dihydroisophoronecyanohydrin (FARBWERKE VORM. MEISTER, LUCIUS, & BRUNING), A., i, 627.

Dihydroisophorylcarboxylic acids, and amides, *cis*- and *trans*-hydroxy- (FARBWERKE VORM. MEISTER, LUCIUS, & BRUNING), A., i, 627.

Dihydropulegenone, and its constitution, and its oxime, and semicarbazone (WALLACH, COLLmann, and THEDE), A., i, 568.

Dihydropyridine synthesis, Hantzsch's, and its extension (KNOEVENAGEL, ERLER, and REINECKE), A., i, 651.

Dihydroquinazoline (GABRIEL), A., i, 445.

Dihydroresorcin, action of phosphorus haloids on (CROSSLEY and HAAS), T., 494; P., 75.

hydrobromide and hydrochloride (CROSSLEY and HAAS), T., 499.

Dihydrostyryl-6-methylpyridine, 2-*m*-nitro-*α*-hydroxy-, and its salts (WERNER), A., i, 574.

Dihydrostyrylquinoline, *o*-nitro-2-*α*-hydroxy-, and its salts (LOEW), A., i, 578.

Dihydrotanacetone (SEMMLER), A., i, 505.

$Δ^1$ - 4 -**Dihydroterephthalic acid**, condensation products of (THIELE and GIESE), A., i, 424.

$Δ^2$ - 5 -**Dihydroterephthalic acid**, methyl ester, behaviour of, at high temperatures, and in presence of spongy platinum (KNOEVENAGEL and BERGDOLT), A., i, 830.

Dihydrotetrazine derivatives, formation of (JUNGHAHN and BUNIMOWICZ), A., i, 130.

Dihydroxy-compounds. See under the parent Substances.

Dihydro-*o*-xylene. See Cantharene.

Dihydro-*m*-xylene (HARRIES and ANTONI), A., i, 614.

$α\delta$ -**Diketoadipic acid**, $β\gamma$ -dicyano-, ethyl ester (MICHAEL), A., i, 736.

$α\beta$ -**Diketobutyric acid**, ethyl ester, $α\beta$ -dimethylaminoanil of (SACHS, WOLFF, and KRAFT), A., i, 793.

Diketodi- $β$ -hydroxypropylpiperazine (FISCHER and LEUCHS), A., i, 12.

Diketohydrindene. See Indandione.

Diketohydrindene-3-carboxylic acid and 2-bromo- (STADLER), A., i, 102.

Diketohydrindene-3-methoxy-, -3-ethoxy-, -2-bromo-3-methoxy-, and -2-bromo-3-ethoxy-hydrindone-3-carboxyloactones (STADLER), A., i, 102.

$1:3$ -**Diketo-4-methyltetrahydrobenzene, pentachloro-** (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 759.

$α$ -**Diketone-osazones**, formation of, from aldehydephenylhydrazones (BILTZ and SIEDEN), A., i, 120.

Diketones, quinonoid, action of sulphuric acid on (OECHSNER DE CONINCK), A., i, 710.

$β$ -**Diketones**, olefinic, action of benzamidine on (RUHEMANN), T., 1371; P., 246.

$1:2$ -**Diketones**, constitution of monosemicarbazones and acetylhydrazones of (DIELS and VOM DORP), A., i, 862.

$1:3$ -**Diketones**, derivatives of, containing nitrogen (STOBBE and WERDERMANN), A., i, 423.

1:3-Diketones of the pentamethylene series, tautomerism in (STOBBE and WERDERMANN), A., i, 421.

δ-(1:5)-Diketones (KNOEVENAGEL), A., i, 636; (KNOEVENAGEL, ERLER, and REINECKE), A., i, 651.

αβ-Diketonic esters, preparation of (SACHS, WOLFF, and KRAFT), A., i, 793.

Di-p-ketotolane dichloride, hexachloro- (ZINCKE and FRIES), A., i, 183.

Dilatograph, self-registering (v. SAH-MEN and TAMMANN), A., ii, 356.

Dimethoxyanhydroglycogalol and its potassium salt (PERKIN and WILSON), T., 137.

Dimethoxybenzene, dibromonitro- (JACKSON and FISKE), A., i, 689.

p-Dimethoxybenzhydrol and its acetate (SCHNACKENBERG and SCHOLL), A., i, 341.

2:4-Dimethoxybenzoic acid (dimethyl-β-resorcylic acid), methyl and ethyl esters (PERKIN and SCHIESS), P., 14.

3:4-Dimethoxybenzoic acid, 2-hydroxy-, and its methyl ester (HERZIG and POLLAK), A., i, 346.

5-hydroxy-, and its methyl ester (HERZIG and POLLAK), A., i, 89.

6-nitroso- (SUMULEANU), A., i, 632.

3:5-Dimethoxybenzoic acid and its methyl ester (BÜLOW and RIESS), A., i, 101.

p-Dimethoxybenzophenone and its phenylhydrazone (SCHNACKENBERG and SCHOLL), A., i, 341.

1:2-Dimethoxybenzophenoneoxime, 3-hydroxy- (BARTOLOTTI and LINARI), A., i, 177.

2:4-Dimethoxybenzoylacetophenone (PERKIN and SCHIESS), P., 14.

3:5-Dimethoxybenzoylacetophenone and its copper salt, and iso-oxazoles from (BÜLOW and RIESS), A., i, 101.

quinonoid benzopyranol derivatives from (BÜLOW and RIESS), A., i, 715.

Dimethoxybisbenzaronyl and its reduction (RUHEMANN), T., 1132; P., 202.

Dimethoxybisketocoumaran (RUHE-MANN), T., 1133.

3:4-Dimethoxy-α-chlorobenzyldeoxybenzoin (KLAGES and TETZNER), A., i, 101.

7:8-Dimethoxychromone and its 2-carboxylic acid (DAVID and v. KOSTANECKI), A., i 272.

Dimethoxycinnamic acids, β-2:4- and 3:4-, and their ethyl esters (PERKIN and SCHIESS), P., 14.

Dimethoxycyanuric chloride (DIELS and LIEBERMANN), A., i, 868.

αα-Dimethoxydihydrocinnamic acid, methyl ester, and sodium salt (MOUREU), A., i, 698.

4:4'-Dimethoxydiphenylmethane, 3:3'-diamino- and 3:3'-dinitro- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 558.

2:5-Dimethoxy-3-ethoxy-1-propylbenzene and 4-nitro- (THOMS), A., i, 558.

7:8-Dimethoxy-2-methylchromone (BLUMBERG and v. KOSTANECKI), A., i, 644.

2:5-Dimethoxy-α-methylcinnamic acid (THOMS), A., i, 415.

Dimethoxynaphthalenes, 1:5-, 2:3-, and 2:6- (KAUFFMANN and BEISSWENGER), A., i, 330.

3:6-Dimethoxyphenanthrene, 4-hydroxy-. See Thebaol.

3:4-Dimethoxyphenanthrenecarboxylic acid (PSCHORR, JAECKEL, and FECHT), A., i, 195.

3:6-Dimethoxyphenanthrene-9-carboxylic acid, 4-hydroxy- (PSCHORR, SEYDEL, and STÖHRER), A., i, 168.

4-(3':5')-Dimethoxyphenyl-2-phenyl-1:4-dihydropyran, 7-hydroxy-, and its acetate (BÜLOW and RIESS), A., i, 715.

2:3-Dimethoxyphenol (HERZIG and POLLAK), A., i, 346.

3:4-Dimethoxyphenyl-αβ-di-bromopropionic acid, ethyl ester (PERKIN and SCHIESS), P., 15.

5-Dimethoxyphenyl-3-phenylisooxazole (BÜLOW and RIESS), A., i, 101.

3:4-Dimethoxyphenylpropionic acid, formation of (PERKIN and SCHIESS), P., 15.

Di-p-methoxyphenylsuccinamide and di-nitro- (FICI), A., i, 162.

Dimethoxy-1-propenylbenzenes, 2:5- and 4:5- (THOMS), A., i, 415.

2:5-Dimethoxy-1-propylbenzene, and 4-amino- and its acetyl derivative, and 4-nitro- (THOMS), A., i, 415.

4:5-Dimethoxy-1-propylbenzene, 2-amino-, and 2-mono-, 2:6-di- and 2:3:6-tri-nitro- (THOMS), A., i, 415.

2:5-Dimethoxy-3-n-propyloxy-1-propylbenzene and 4-nitro- (THOMS), A., i, 558.

Dimethoxypyrimidine, chloro- (BÜTTNER), A., i, 659.

4:4'-Dimethoxystilbene, 3:5:3':5'-tetrabromo-, and its dibromide (AUWERS), A., i, 622.

3:4-Dimethoxyvinylphenanthrene and its picrate and tetrabromo-derivative (PSCHORR, JAECKEL, and FECHT), A., i, 194.

Dimethylacetooacetic acid, methyl ester, action of nitric acid on (PERKIN), T., 1217.

αα-Dimethylacetonedicarboxylic acid, ethyl ester, and its preparation and reduction (PERKIN and SMITH), T., 12.

2:7-Dimethylacridine and its hydride and salts (ULLMANN and WAITZ), A., i, 519.

2:7-Dimethylacridine, 6-amino-, and its acetyl derivative and hydrochloride (ULLMANN and MÜHLHAUSER), A., i, 520.

3:7-Dimethylacridine and 2:8-diamino- (HAASE), A., i, 366.

Dimethyl-4-allylbenzenes, 1:2- and 1:3- (KUNKELL), A., i, 617.

α-Dimethylaminooalizarin (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 499.

α-Dimethylaminoanthraquinone and its sulphonie acid and 4-chloro-, 4-hydroxy-, and 8-piperidino-derivatives (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 499.

Dimethylaminobenzaldehyde indogenide (NOELTING), A., i, 198.

p-Dimethylaminobenzaldehyde, reactions of, and its *m*-nitro-derivative and its compound with acetophenone (SACHS and LEWIN), A., i, 37.

p-Dimethylaminobenzaldehydecyanohydrin (SACHS and LEWIN), A., i, 37.

Dimethylaminobenzylamine (TSCHERNIAC), A., i, 490.

p-Dimethylaminobenzyl-aniline, -methylaniline, -anisidines, -*p*-phenetidine, and -*p*-toluidine, -*α*-cyano- (SACHS and LEWIN), A., i, 38.

p-Dimethylaminobenzylidene-acetone and -acetophenone (SACHS and LEWIN), A., i, 38.

p-Dimethylaminobenzylidene-aniline, -anisidines, -*p*-phenetidine, and -*p*-toluidine (SACHS and LEWIN), A., i, 38.

p-Dimethylaminobenzylidene-barbituric acid, -malononitrile, and -*p*-nitrobenzyl cyanide (SACHS and LEWIN), A., i, 39.

p-Dimethylaminodiphenylamine-*m*-carboxylic acid, *p*-hydroxy- (CASSELLA & CO.), A., i, 860.

Dimethyltetraamino-diphenylmethane and -phenyl-*o*-tolymethane (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 519.

Dimethylaminofluoran, chloro- (MEISTER, LUCIUS, & BRUNING), A., i, 510.

2'-Dimethylamino-3'-hydroxy-benzoyl- and -benzyl-3:6-dichlorobenzoic acids (SEVERIN), A., i, 262.

Dimethylamino-2-hydroxydichloroanthraquinone (SEVERIN), A., i, 262.

p-Dimethylaminomandelic acid, barium salt, and amide (SACHS and LEWIN), A., i, 38.

9-Dimethylaminophenanthrene methiodide (SCHMIDT and STROBEL), A., i, 692.

Dimethylaminophenyldimethylpyrazolone, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRUNING), A., i, 866.

Dimethylaminophenyldimethylpyrazolone camphorates (MEISTER, LUCIUS, & BRUNING), A., i, 530.

4'-Dimethylaminophenyl-phenyl-, -4-ethoxyphenyl-, -4-methoxyphenyl-, and -4-tolyl-*μ*-cyanoazomethines (SACHS and LEWIN), A., i, 38.

p-Dimethylaminophenyl-*p*-hydroxy-*m*-tolylamine (CASSELLA & CO.), A., i, 860.

p-Dimethylaminophenyl-thiocarbamide, -thiohydantoic acid, and -*ψ*-thiohydantoin (WHEELER and JAMIESON), A., i, 522.

Dimethylammonio-cadmium chloride (LANG), T., 724; P., 125.

Dimethylanhydracetonebenzils, $\alpha\beta$ - and $\beta\beta$ -, oxidation products of (JAPP and MICHELIE), T., 279; P., 21.

Dimethylaniline, latent heat of vaporisation of (LUGININ), A., ii, 7.

Dimethylaniline-*β*-naphthisatin (WICHELIUS), A., i, 632.

Dimethylanilinesulphonie acids, preparation of (JUNGHAHN), A., i, 474.

p-Dimethylanilinoaminoacetamide (LUMIÈRE and PERRIN), A., i, 832.

2:6-Dimethyl-1:4-anisidine (BAMBERGER), A., i, 624.

2:6-Dimethylanthraquinones, 1:5-, 3:5-, and 3:7-dihydroxy-, and the mono-methyl ether and acetyl derivatives of the 3:5-compound (JOWETT and POTTER), T., 1331; P., 220.

Dimethylapomorphine and its salts (PSCHORR, JAECKEL, and FECHT), A., i, 194.

2:5-Dimethylbenzaldehyde and its oximes (FRANCESCONI and MUNDICI), A., i, 426.

Dimethylbenzene-aluminium chloride, additive and fermentative properties of (GUSTAVSON), A., i, 470, 805.

Dimethylbenzylamidine, benzoyl derivative, and its platinichloride (LANDER), T., 323; P., 16.

p-Dimethylbenzonitrile (FRANCESCONI and MUNDICI), A., i, 426.

Dimethylbenzonitriles (SCHOLL and KAČER), A., i, 255.

Dimethylbenzophenones, 2:4'- and 3:4'-, and their oximes (SCHARWIN and SCHORIGIN), A., i, 635.

1:4-Dimethylbenzyl alcohol, acetate of (FRANCESCONI and MUNDICI), A., i, 427.

2:5-Dimethylbenzyl alcohol (FRANCESCONI and MUNDICI), A., i, 427.

3:5-Dimethylbenzyl alcohol, 4-hydroxy- (BAMBERGER), A., i, 624.

2:5-Dimethylbenzyl-2:5-dimethylbenzylidenehydrazine and its acetyl and benzoyl derivatives (HARDING and RICE), A., i, 286.

Dimethyl-m-biscyclohexenone (KNOEVENAGEL), A., i, 638.

β-Dimethylbutane-αδ-diol (BOUVEAULT and BLANC), A., i, 730.

αα-Dimethylbutane-αβδ-tricarboxylic acid (*hexanetricarboxylic acid*), and β-cyano-, and its ethyl ester (PERKIN and THORPE), P., 61.

Dimethylbutenylbenzene (RIIBER), A., i, 471.

1:3-Dimethyl-4-α-butenylbenzene (KUNKELL), A., i, 617.

βγ-Dimethyl-β-butylene. See Hexylene.

α-Dimethylbutyric acid. See Hexoic acid.

Dimethyl-m-chloroaminoazobenzene-p-sulphonic acid and its barium salt (GOLDSCHMIDT and KELLER), A., i, 135.

1:4-Dimethyl-4-dichloromethyldihydrobenzene, 1-hydroxy- (AUWERS and KEIL), A., i, 620.

4:6-Dimethylcoumaran (STOERMER and GÖHL), A., i, 848.

Dimethyldiethylpiperazonium salts (STRÖMSTEDT), A., i, 291.

1:1-Dimethyl-Δ^{2:4}-dihydrobenzene, 3:5-dichloro- (CROSSLEY and LE SUEUR), T., 112.

2:5-Dimethyl-2:3-dihydrofuran-4-carboxylic acid, chloro-, ethyl ester (HALLER and MARCH), A., i, 319, 714.

Dimethyldihydropyrazine and its salts and oxalate (GABRIEL and COLMAN), A., i, 13.

3:6-Dimethyl-4:5-dihydropyridazine-4:5-dicarboxylic acid, esters (PAAL and UBEER), A., i, 290.

3:5-Dimethyldihydropyridine-2:6-dicarboxylic acid, ethyl ester, behaviour of, at high temperatures and in presence of spongy palladium (KNOEVENAGEL and FUCHS), A., i, 852.

Dimethyldihydroresorcin, action of phosphorus haloids on (CROSSLEY and LE SUEUR), T., 110.

anhydride (CROSSLEY and LE SUEUR), T., 119.

αα-Dimethyldihydrosorbic acid (*octenoic acid*), β-hydroxy-, and its ethyl ester and salts, synthesis of (JAWORSKY and REFORMATSKY), A., i, 4; (JAWORSKY), A., i, 730.

βδ-Dimethyldihydrosorbic acid (*octenoic acid*) (RUPE and LOTZ), A., i, 229.

Dimethyl-1:6-dihydro-1:2:4-triazine, 3:5-dihydroxy- (BAILEY), A., i, 130.

5:5'-Dimethyldiphenyl-2:2'-disulphonic acid, 4:4'-dichloro-, and its barium salt (ELBS and WOHLFAHRT), A., i, 213.

1:8-Dimethyl-4:5-diisopropyl-xanthen and -xanthone (FOSSE and ROBYN), A., i, 647.

Dimethylenetriacetylacetone (KNOEVENAGEL), A., i, 639.

1:3-Dimethyl-2-ethylindole and its picrate (PLANCHER), A., i, 114.

2:5-Dimethyl-1-ethylindole (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 516.

2:3-Dimethyl-3-ethylindolenine salts (PLANCHER), A., i, 433.

3:3-Dimethyl-2-ethylindolenine and its salts and benzoyl derivative (PLANCHER and BONAVIA), A., i, 433.

1:3-Dimethyl-3-ethyl-2-methyleneindoline and its acyl derivatives (PLANCHER; PLANCHER and BONAVIA), A., i, 433.

Dimethylethylpyruvic acid and its phenylhydrazone and calcium salt (ANSCHÜTZ and RAUFF), A., i, 555.

Dimethylglutaconic acid (*pentenedicarboxylic acid*) (m.p. 123°-133°), and its anhydride and anilino-acid (BLAISE), A., i, 316.

αα-Dimethylglutaconic acids (*pentenedicarboxylic acids*), *cis*- and *trans*-, synthesis of (PERKIN and SMITH), T., 8.

αγ-Dimethylglutaconic acid (*pentenedicarboxylic acid*), ethyl esters (BLAISE), A., i, 549.

Dimethylglutaconic acids (*pentenedicarboxylic acids*) (BLAISE), A., i, 400.

αα-Dimethylglutaric acid (*pentanedicarboxylic acid*), preparation of, from sulphocampholene carboxylic acid (HARVEY and LAPWORTH), T., 1113; P., 148.

synthesis of, and *cis*- and *trans*-βγ-dibromo- and β-hydroxy- (PERKIN and SMITH), T., 8.

$\alpha\alpha$ -Dimethylglutaric acid (*pentanedicarboxylic acid*), synthesis of, and β -iodo- (BLAISE), A., i, 604.

$\alpha\beta$ -Dimethylglutaric acid (*pentanedicarboxylic acid*) and anhydride, and its anilino- and *p*-toluidino-derivatives (BLAISE), A., i, 315.

$\alpha\beta$ -Dimethylglutaric acids (*pentanedicarboxylic acids*), *cis*- and *trans*-, and their derivatives (THORPE and YOUNG), T., 351.

cis- $\alpha\gamma$ -Dimethylglutaric acid (*pentanedicarboxylic acid*) and anhydride (BLAISE), A., i, 316.

1:2-Dimethylglyoxaline and its salts (JOWETT and POTTER), T., 469; P., 56.

1:4-(or 1:5)-Dimethylglyoxaline and its salts (JOWETT), T., 445; P., 55. preparation and properties of, and its salts and dibromo-derivative (JOWETT and POTTER), T., 464; P., 56.

$\alpha\gamma$ -Dimethyl- δ -heptenonitrile (BREDT and WORNAST), A., i, 770.

Dimethylheptylcarbinol. See Decyl alcohol.

1:1-Dimethyl- $\Delta^{2,4}$ -and 2,5 -cyclohexadienes (HARRIES and ANTONI), A., i, 614; (CROSSLEY and LE SUEUR), A., i, 804.

5:5-Dimethylhydantoin, 4-imino- (PILOTY and VOGEL), A., i, 254.

2:4-diimino-1-hydroxy-, and the action of hydrazine hydrate on (PILOTY and VOGEL), A., i, 523.

Dimethylindigotins, *o*- and *p*- (SANDMEYER and CONZETTI), A., i, 487.

3:3-Dimethylindolenyl-2-methylketoxime and its acyl derivatives (PLANCHER and BONAVIA), A., i, 434.

Dimethylmalonamic acid, methyl ester and its calcium salt (PERKIN), T., 1221.

Dimethylmalonamide (PERKIN), T., 1221.

Dimethylmalonanilic acid, and *p*-chloro-, methyl esters (PERKIN), T., 1222.

B-Dimethylnaphthasafranine and its reactions and salts (FISCHER and HEPP), A., i, 59.

Dimethylnonylcarbinol. See Dodecyl alcohol.

Dimethylolacetophenone (VAN MARLE and TOLLENS), A., i, 494.

Dimethyloldimethylenebisacetylacetone (KNOEVENAGEL), A., i, 639.

Dimethylolmethylenebisacetylacetone and its dioxime (KNOEVENAGEL), A., i, 639.

Dimethylpapaveroline and its salts (PICTET and KRAMERS), A., i, 358.

Dimethylpentaglycerol. See γ -Methyl- $\beta\beta$ -dimethylol- α -butanol.

β -Dimethylpentane- α -diol (BOUVEAULT and BLANC), A., i, 731.

$\gamma\gamma$ -Dimethyl- α -pentinoic acid. See Heptinoic acid.

1:2-Dimethylisopheno-1:3:4-diazosulphonine (EKBOM), A., i, 411.

pp' -Dimethylphenylformazylcarboxylic acid, methyl ester (LAPWORTH), T., 1125; P., 149.

Dimethylphloroglucinol, trimethyl ether (HERZIG and WENZEL), A., i, 491.

Dimethylphloroglucinolcarboxylic acid, methylethers, and their esters (HERZIG and WENZEL), A., i, 491.

Dimethylphloroglucinolphthalein (LIEBERMANN and ZERNER), A., i, 488.

2:5-Dimethylpiperidine and its salts (AHRENS and GORKOW), A., i, 515.

$\alpha\beta$ -Dimethylpropanetricarboxylic acid (*pentanetricarboxylic acid*) (THORPE and YOUNG), T., 358; P., 248.

3:4-Dimethyl-1-5-propylpyrazole and its 4-carboxylic acid, methyl ester (BOUVEAULT and BONGERT), A., i, 145.

1:3-Dimethylpyrazole, preparation and properties of, and its salts and dibromo-derivative (JOWETT and POTTER), T., 464; P., 56.

3:5-Dimethylpyrazole, 4-nitroso- (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 210.

Dimethylpyrazolidine and its salts and dibenzoyl derivative (TAFEL and PFEFFERMANN), A., i, 288.

3:6-Dimethylpyridazine and its salts and 4:5-dicarboxylic acid, and esters and salts (PAAL and UBBER), A., i, 290.

3:6-Dimethylpyridazinecarboxylic acid, ethyl ester (PAAL and UBBER), A., i, 290; (PAAL and KOCH), A., i, 722.

Dimethylpyridine (*lutidine*), indazole derivatives from (MICHAELIS and v. AREND), A., i, 292.

2:3-Dimethylpyridine from Scottish shale oil and its salts (GARRETT and SMYTHE), T., 764; P., 164.

2:6-Dimethylpyridine, condensation of, with aldehydes (WERNER), A., i, 574. condensation of, with formaldehyde (KOENIGS and HAPPE), A., i, 850.

Dimethylpyridines, 2:5- and 3:5-, and their salts, from coal tar (AHRENS and GORKOW), A., i, 515.

2:6-Dimethylpyridyl-4-hydrazine and its salts, benzylidenehydrazine, semicarbazide, and phenylthiosemicarbazide (MARCKWALD and RUDZIK), A., i, 515.

2:6-Dimethylpyridyl-4-phenylhydrazine and -azobenzene and their salts (MARCKWALD and RUDZIK), A., i, 515.

2:4-Dimethylpyrrole, oxidation of (PLANCHER and CATTADORI), A., i, 361.

2:5-Dimethylpyrrole, 1-amino-, and its benzoyl derivative (BÜLOW and v. KRAFFT), A., i, 196.

2:5-Dimethylpyrrole-3:4-dicarboxylic acid, 1-amino-, and its ethyl ester and benzoyl derivatives (BÜLOW and v. KRAFFT), A., i, 196.

1:1-Dimethylquinolinium picrate (DECKER, ELIASBERG, and WISŁOCKI), A., i, 718.

Dimethylsalicylaldehydes, *o*- and *op*- (ANSELMINO), A., i, 122.

Dimethylsalicylaldehydophenylhydrazones, *op*-, *mp*-, and *p*- (ANSELMINO), A., i, 121.

αα-Dimethylsorbic acid (octinoic acid), β-hydroxy-, and its ethyl ester and salts (JAWORSKY and REFORMATSKY), A., i, 4; (JAWORSKY), A., i, 730.

ββ-Dimethylsorbic acid (octinoic acid), and its ethyl ester (RUPE and LOTZ), A., i, 229.

Dimethylstannone (PFEIFFER and LEHNARDT), A., i, 803.

2:6-Di-p-methylstyrylpypyridine and its salts and tetrabromide (WERNER), A., i, 574.

αα-Dimethylsuccinic acid (butanedicarboxylic acid) (PERKIN), T., 845.

αα-Dimethylsuccinic acid (butanedicarboxylic acid), bromo-, preparation of, and action of diethylaniline on (BONE and HENSTOCK), T., 1383; P., 247.

2:9-Dimethylthioquinanthren and its additive salts (EDINGER and EKELEY), A., i, 58.

N-S-Dimethylthiourethane (v. BRAUN), A., i, 14.

Dimethyl-*o*-toluidine, latent heat of vaporisation of (LUGININ), A., ii, 7.

5':5'''-Dimethyltriphenylmethane, 2':2'''-diamino-3'-nitro- and -4'-nitro- (ULLMANN and WEINTRAUB), A., i, 520.

4:5-Dimethyluracil, synthesis of (WHEELER and MERRIAM), A., i, 525.

β-Dimethyluracil, hydroxy- (BEHREND and FRICKE), A., i, 739.

γγ-Dimethylvaleric acid. See Heptoic acid.

Dimethylvinylacetic acid. See Hexenoic acid.

Dimethylvioluric acid, action of barium hydroxide on (WHITELEY), T., 18.

1:8-Dimethyl-xanthen and -xanthone (FOSSE and ROBYN), A., i, 647.

1:3-Dimethylxanthine. See Theocine.

4:5-Dimethylxanthone (FOSSE), A., i, 510.

Dimorpholyltetrazone (KNORR and BROWNSDON), A., i, 154.

Dinaphthacarbazoles, *s*-1:2-, and 1:2:2'1' (JAPP and MAITLAND), T., 273; P., 19.

Di-β-naphthacoumarin (BARTSCH), A., i, 649.

Di-β-naphthalenesulpho-tyrosine and *-tyrosyl-dl-leucine* (FISCHER and BERGELL), A., i, 694.

Dinaphthapyranol, constitution of (FOSSE), A., i, 49.

Di-*a*- and -β-naphthyldihydrotetrazines (JUNGHAHN and BUNIMOWICZ), A., i, 130.

Dinaphthylenethiophen (DZIEWOŃSKI and BACHMANN), A., i, 431; (REHLANDER), A., i, 571.

Dinitriles, condensation of, with phenols (v. MEYER), A., i, 482.

Dioximes, behaviour of, with ferrous sulphate and alkali (WHITELEY), T., 27.

2:6-Dioxy-4-isobutyl- and -4-hexyl-pyridines, 3:5-dicyano-, and their derivatives (GUARESCHI), A., i, 737.

Dicyclopentadiene, sulphone of (BOES), A., i, 20.

Dipeptide derivatives, synthesis of (FISCHER and OTTO), A., i, 607. and their behaviour towards pancreas ferment (FISCHER and BERGELL), A., i, 694.

Diphenacyl, halogen derivatives, action of silver acetate on (PAAL and SCHULZE), A., i, 709. bromo- and chloro-derivatives and their additive products (PAAL and SCHULZE), A., i, 707. cyano- (PAAL and SCHULZE), A., i, 709. iodo-derivatives, and their additive products (PAAL and SCHULZE), A., i, 708.

s-Di-9-phenanthrylthiocarbamide (SCHMIDT and STROBEL), A., i, 692.

Diphenoxyhexane (HAMONET), A., i, 251.

Diphenoxylisopropylphosphorous acid, salts (BOYD), T., 1137.

Diphenyl, pyrogenetic preparation of, by the electric current (LÖB), A., i, 20. halogen derivatives of (CAIN), P., 284. 3:3'-dichloro-4:4'-dihydroxy- (CAIN), T., 691; P., 137. dihydroxy-, and its *diacetate* (NORRIS, MACINTYRE, and CORSE), A., i, 372.

Diphenyl, 4:4'-dihydroxy-, halogen derivatives of (CAIN), P., 284.

Diphenyl ether, *o*-hydroxy-, and its acetyl derivative and methyl ether (NORRIS, MACINTYRE, and CORSE), A., i, 372.

sulphide and sulphoxide, *p*-amino- (HINSBERG), A., i, 252.

hydroxy- (HINSBERG), A., i, 251.

disulphide, 3:3':4'-dibromo-2:2'-dinitro- and 3:4:3':4'-tetrachloro-6:6'-dinitro- (BLANKSMA), A., i, 334.

4:4'-dinitro- (WOHLFAHRT), A., i, 203.

Diphenylacetic acid, chloro-, preparation of, and triphenylacetic acid from it (BISTRZYCKI and HERBST), A., i, 256.

Diphenylacetylene. See Tolane.

Diphenylamine, 2:3:4-*tr*bromo-6-nitro- (JACKSON and FISKE), A., i, 690.

chloro-*N*-acetyl (FRERICHS), A., i, 610.

chloronitro-derivatives of (REVERDIN and CRÉPIEUX), A., i, 248.

2':4'-dinitro-4-amino- and 2':4'-dinitro-4-hydroxy-, and their acetyl derivatives, bromo- and chloro-compounds of (REVERDIN and CRÉPIEUX), A., i, 857.

Diphenylamine-2'-sulphonic acid, 2:4-dinitro-4'-hydroxy- (KALLE & Co.), A., i, 816.

Diphenyl-*p*-anisylmethane and its derivatives (v. BAAYER, VILLIGER, and HALLENSLEBEN), A., i, 813.

1:5-Diphenyl-4-benzylidihydrotriazole, *endo*thio- (BUSCH, KAMPHAUSEN, and SCHNEIDER), A., i, 531.

2:3-Diphenyl-1-benzylhydroxyamidine and its hydrochloride (LEY and HOIZ WEISSIG), A., i, 282.

ac-Diphenyl-1-benzyl- ψ -dithiobiuret (JOHNSON and ELMER), A., i, 752

Diphenylbisazophenol and its ethers (MEYER and MAIER), A., i, 870.

Diphenyl-3:4:5-*tr*bromoquinoxaline (JACKSON and FISKE), A., i, 690.

$\beta\delta$ -Diphenyl- β -buten- δ -one. See Phenyl methylstilbonyl ketone.

$\alpha\gamma$ -Diphenylbutyl cyanide, chloro- β imino-(β -imino- γ -phenyl- α -chlorophenylbutyl cyanide) (v. WALTHER and HIRSCHBERG), A., i, 495.

Diphenylcarbamide, nitroso- (HANTZSCH and WECHSLER), A., i, 211.

Diphenylcarbamidedisulphonic acid, 4:4'-diamino- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 584.

Diphenylcarbinols, synthesis of (MAS-SON), A., i, 28.

3:5-Diphenyl-1-*p*-chloro-*o*-tolyltriazole (v. WALTHER and KRUMBIEGEL), A., i, 662.

Diphenyl- Δ^1 -crotolactone (JAPP and MICHIE), T., 283.

N-Diphenyl-S-dialkylisothiouram disulphides (v. BRAUN and RUMPF), A., i, 619.

Diphenyl-4:4'-dicarboxylic acid, 3:3'-dichloro- (CAIN), P., 284.

Diphenyldihydrazone-oxalacetic acid, ethyl ester, preparation of (RABISCHONG), A., i, 55.

Diphenyldihydropyridazine (PAAL and DENCKS), A., i, 289.

Diphenyldihydropyrimidone, and its carboxylic acid, ethyl ester (RUHEMANN), T., 374 ; P., 50.

Diphenyldihydropyrimidone, *m*-nitro-, and its carboxylic acid, ethyl ester (RUHEMANN), T., 719 ; P., 128.

Diphenyldihydrotetrazine, *di-m*-amino- (JUNGHAHN and BUNIMOWICZ), A., i, 131.

Diphenyl-*s*-*N*-dihydrotetrazinethiol (BUSCH, KAMPHAUSEN, and SCHNEIDER), A., i, 533.

1:4-Diphenyldihydrotriazole, *endo*thio-, and its 5-methyl derivative (BUSCH and SCHNEIDER), A., i, 534.

Diphenyldimethylammonium salts (GADOMSKA and DECKER), A., i, 692.

$\beta\gamma$ -Diphenyl- $\alpha\alpha$ -dimethylbutyric acid (JAPP and MICHIE), T., 311.

2:3-Diphenyl-1:1-dimethylbutyrolactone (γ -hydroxy $\beta\gamma$ -diphenyl- $\alpha\alpha$ -dimethylbutyric acid, lactone of) (JAPP and MICHIE), T., 311.

2:3-Diphenyl-1:1-dimethyl- Δ^2 -crotolactone (JAPP and MICHIE), T., 308.

1:4-Diphenyl-3:6-dimethylidopyrazole and its methiodide (MICHAELIS and BENDER), A., i, 289.

$\alpha\beta$ -Diphenyl- $\alpha\alpha$ -dimethyl- $\alpha'\beta'$ -oxido-glutaric acid and anhydride, and the action of phenylhydrazine on the acid (JAPP and MICHIE), T., 307 ; P., 22.

4:5-Diphenyl-1:3-dimethylcyclopentanone-2, 1:4:5-trihydroxy-, and its reactions (JAPP and MICHIE), T., 295 ; P., 21.

4:5-Diphenyl-1:3-dimethylcyclopentanone-2 (JAPP and MICHIE), T., 303.

Diphenyl-dimethyl-, -diethyl-, and -dimethylethyl-thiouram sulphides (v. BRAUN and STECHELE), A., i, 619.

Diphenylene-3:4:5-*tr*bromoquinoxaline (JACKSON and FISKE), A., i, 690.

2':3'-Diphenyleneindole. See 9:10-Phenanthracarbazole.

Diphenylethenylamidine, benzoyl derivatives of (WHEELER, JOHNSON, and MCFARLAND), A., i, 859.

Diphenylethenylamidine, isonitroso- (SANDMEYER), A., i, 486.

Diphenylethenylhydrazine and its hydrochloride (VOSWINCKEL), A., i, 777.

1:5-Diphenyl-1-ethylidihydrotriazole, *endo*-thio- (BUSCH, KAMPAUSEN, and SCHNEIDER), A., i, 532.

***s*-Diphenylethylene**. See Stilbene.

1:4-Diphenyl-3-ethylpyrazolone (DIMROTH and FEUCHTER), A., i, 630.

ac-Diphenyl-1-ethyl- ψ -dithiobiuret (JOHNSON and CRAMER), A., i, 753.

Diphenylethyltriazole, hydroxy-, and its acetate (RUPE and METZ), A., i, 537.

Diphenylglycolide (EINHORN and METTLER), A., i, 30.

Diphenylglyoxaline hydrochloride (PINNER), A., i, 123.

1:3-Diphenylcyclohexenone-5, and its phenylhydrazone (KNOEVENAGEL and ERLER), A., i, 637.

3:5-Diphenylimino-4:2-diphenyltetrahydro-1:2 4-thiodiazole (HUGERSHOFF), A., i, 865.

Diphenyliodonium chloride and iodide, transformation of (BÜCHNER), A., i, 615.

Diphenylmaleic acid (JAPP and MICHEL), T., 279.

Diphenylmethane derivatives, formation of, from ψ -phenols and allied compounds (AUWERS), A., i, 621. groups, some reactions of (VONGERICHTEN and BOCK), A., i, 721.

Diphenylmethane, 4:4'-diamino-, and its 2-mono- and 2:2'-di-nitro-derivatives (EPSTEIN), A., i, 580.

4' and 6'-amino-2:4-dihydroxy- (FRIEDLÄNDER and v. HORVATH), A., i, 253.

6'-amino-2:4:6-trihydroxy- (FRIEDLÄNDER and v. HORVATH), A., i, 253.

4:4'-dihydroxy-, and its 2:5:2':5'-tetramethyl derivatives and their bromo-compounds and diacetates (AUWERS), A., i, 622.

2:3-Diphenyl-1-methyl- Δ^1 -crotolactone (JAPP and MICHEL), T., 280; P., 21.

Diphenylmethyldihydropyrimidine, and *m*-amino- and *m*-nitro- (RUHEMANN), T., 1874; P., 247.

1:4-Diphenyl-3-methyldipyrazole and its bromo-, nitro-, acetyl, and benzoyl derivatives (MICHAELIS and BENDER), A., i, 289.

4-Diphenylmethylenequinone and 2:6-dibromo- (AUWERS and SCHROETER), A., i, 820.

4:5-Diphenyl-1-methylglyoxaline (PINNER), A., i, 123.

$\alpha\beta$ -Diphenyl- α -methylglutaric acid, $\alpha'\beta'$ -dihydroxy- (JAPP and MICHEL), T., 281; P., 21.

1:3-Diphenyl-2-methylpyrazolone, 4-hydroxy-, and its methyl ether and benzoate (SACHS and BECHERESCU), A., i, 530.

2:4-Diphenyl-7-(or 5)-methyl-Bz-tetrahydroquinoline, synthesis of, and its salts (STOBBE and HELLER), A., i, 115.

Diphenyl-mon- and -di-methyl- ψ -dithiobiurets (JOHNSON and ELMER), A., i, 752.

2:5-Diphenyl- α -naphthafuran (PAAL and SCHULZE), A., i, 710.

Diphenylnitrosoamine, reactions of (LACHMAN), A., i, 295.

Diphenyloxamic acid, phenyl ester (BISCHOFF and v. HEDENSTRÖM), A., i, 26.

3:5-Diphenyloxazazole, *p*-amino-, and *p*-4-diamino, and its diacetyl derivative, and *p*-nitro- and *p*-4-dinitro- (WIELAND), A., i, 766.

3:4-Diphenyloxazalone, 4-*p*-chloro- (v. WALTHER and HIRSCHBERG), A., i, 494.

$\beta\epsilon$ -Diphenyl- $\beta\delta$ -pentadiene- α -carboxylic acid (FICHTER and GRETER), A., i, 481.

***p*-Diphenylphenol** and its acetate, benzoate, bromo- and dinitro-derivatives and potassium salt (FICHTER and GRETER), A., i, 481.

Di-p-propylphenyliodinium, and iodo-, hydroxides and salts (WILLGERODT and SCKERL), A., i, 747.

Diphenylphosphoric amidine (CAVEN), T., 1048; P., 200.

5:7-Diphenylpyrhydrindene, synthesis of, and its salts (STOBBE and VOLLAND), A., i, 115.

2:6-Diphenylpyridine-3-carboxylic acid and its salts (KLOBB), A., i, 575.

α -Diphenylpyridinediketone (ERRERA), A., i, 266.

3:5-Diphenylpyrazole (MOUREU and BRACHIN), A., i, 581.

7:7-Diphenylquinomethane (BISTRZYCKI and HERBST), A., i, 640.

1:4-Diphenylsemicarbazide, and its formyl derivative (BUSCH and BLUME), A., i, 535.

2:4-Diphenylsemicarbazide (BUSCH and WALTER), A., i, 523.

Diphenylsemicarbazides, 1:4- and 2:4- (BUSCH and FREY), A., i, 537.

Diphenylstyrylcarbinol (KOHLER), A., i, 483.
Diphenylstyrylchloromethane (KOHLER), A., i, 483.
S-Diphenylsuccinonitrile, behaviour of, at high temperatures, and in presence of spongy platinum (KNOEVENAGEL and BERGDOFT), A., i, 831.
Diphenylsulphones, *di-o-* and *p*-hydroxy- (HINSBERG), A., i, 252.
Diphenyltetrazine, *di-m*-amino-, and its salts and diacetyl derivative (JUNGHAHN and BUNIMOWICZ), A., i, 131.
as-Diphenylthiocarbamide, bromo-, chloro- and nitro-derivatives, melting points of (KJELLIN), A., i, 287.
Diphenyl-1-p-tolyldihydrotriazole, endothio- (BUSCH and BLUME), A., i, 535.
1:5-Diphenyl-4-o- and -p-tolyldihydrotriazoles, endothio- (BUSCH, KAMPAUSEN, and SCHNEIDER), A., i, 531.
Diphenyl-m-tolylguanidine and its salts (ALWAY and VIELE), A., i, 201.
Diphenyl-p-tolylhydroxyamidines, 1:2:3- and 2:3:1-, and their hydrochlorides (LEY and HOLZWEISSIG), A., i, 282.
Diphenyltolyltriazoles, synthesis of (v. WALTHER and KRUMBIEGEL), A., i, 661.
1:4-Diphenyl-1:2:3-triazole, 5-amino-, and its acetyl and benzylidene derivatives (DIMROTH and WERNER), A., i, 129.
1:5-Diphenyl-1:2:3-triazole and its **4-carboxylic acid** and its salts and esters (DIMROTH and LETSCHE), A., i, 127.
1:5-Diphenyl-1:2:4-triazole, 3-amino-, and its acyl derivatives and salts (WHEELER and BEARDSLEY), A., i, 293.
3:5-Diphenyl-1-m-xylyltriazole, synthesis of (v. WALTHER and KRUMBIEGEL), A., i, 661.
Diphtheria antitoxin, proteid-free (PROSCHER), A., ii, 317.
 bacillus and its toxin, action of ozone on the (ARLOING and TROUDE), A., ii, 318.
Dipicolinic acid (MEYER), A., i, 364.
1:5-Dipiperidinoanthraquinone and **4:8-diamino-** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 499.
Dipiperidylthiouram sulphide (v. BRAUN and STECHELE), A., i, 618.
Dipiperonylidene cyclopentanone (MENTZEL), A., i, 497.
Dipropylamine, action of, on the isomeric nitrohalogenbenzenes (PERNA), A., i, 406.
Dipropylaminoazobenzene-p-sulphonic acid and its barium salt (GOLDSCHMIDT and KELLER), A., i, 135.
Dipropyl-formamide and **-hydroxylamine** (v. BRAUN), A., i, 611.
Dipropylmalonylcarbamide as a narcotic (FISCHER and v. MERING), A., i, 552.
Dipropylurethane (v. BRAUN), A., i, 611.
Di-2-pyridyl-*o*-, *m*-, and *p*-phenylenediamines and their salts (FISCHER and MERL), A., i, 52.
Dipyrruvyltriureide (SIMON), A., i, 314.
Diquinine carbonate (VEREINIGTE CHININFABRIKEN ZIMMER & Co.), A., i, 513.
Disalicylide (EINHORN and METTLER), A., i, 30.
Disalicylidene cyclopentanone and its dibenzoyl derivative (MENTZEL), A., i, 497.
Dissociation in, and crystallisation from, a solid solution (DE BRUYN and JUNGJUS), A., ii, 531.
 of cerium and lanthanum hydrides (MUTHMANN and BAUR), A., ii, 213.
 of electrolytes (LIEBENOW), A., ii, 128.
 of red and yellow mercuric oxides (SCHICK), A., ii, 147.
 of mercury haloid salts (MORSE), A., ii, 12.
 of salts of heavy metals (LEY and SCHAEFER), A., ii, 279.
 of sulphur at 448°, isotherm of the (PREUNER), A., ii, 644.
 of *dithiocarbamide* di-iodide (MARSHALL), A., i, 16.
Dissociation constant, trustworthiness of the, as a means of determining the identity and purity of organic compounds (SCUDDER), A., ii, 471.
 of water and the E.M.F. of the gas element (PREUNER), A., ii, 51.
Dissociation constants of trimethylene-carboxylic acids (BONE and SPRANKLING), T., 1378 ; P., 247.
 of urea (WALKER and WOOD), T., 490 ; P., 67 ; (WOOD), T., 576 ; P., 68.
Dissociation curves (BOUZAT), A., ii, 529.
 $\alpha\beta$ -Distearin (GUTH), A., i, 226 ; (KREIS and HAFNER), A., i, 457.
Distillations under reduced pressure, pressure regulator for (RÜGHEIMER), A., i, 776.
 of binary mixtures (RAYLEIGH), A., ii, 59.

Distillations, fractional, under reduced pressure, regulator and separator for (BERTRAND), A., ii, 643.
vacuum, apparatus for continuous (MABERY), A., ii, 266.

2:6-Distyrylpyridine, *di-p-nitro-* (WERNER), A., i, 575.

Disuberyl (MARKOWNIKOFF and JACOB), A., i, 239.

2:5-Disulphido- and -Disulphydro-p-phenylenediamines (GREEN and PERKIN), T., 1208; P., 206.

2':2''-Disulphodiphenylbisazo- α -naphthol-4-sulphonic acid and - β -naphthol-3:6-disulphonic acid and their salts (ELBS and WOHLFAHRT), A., i, 213.

2':2''-Disulphodi-phenyl- and -o-tolyl-bisazo- α -naphthylamine-4-sulphonic acids (ELBS and WOHLFAHRT), A., i, 213.

2:2'-Disulphodi-o-tolylbisazosalicylic acid, salts (ELBS and WOHLFAHRT), A., i, 213.

Disulphones (POSNER and HAZARD), A., i, 242.

Dithionic acid. See under Sulphur.

Dithymol d iodide. See Aristol.

Dithylmolyamine mono- and di-ethyl ethers (DECKER and SOLONINA), A., i, 839.

1:5-Di-p-toluidinoanthraquinone (KAUFLEHR), A., i, 427.

1:5-Di-p-toluidino-4:8-dimethylamino-anthraquinone (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 564.

3:5-Di-p-toluidino-2:4-di-p-tolyltetrahydro-1:2:4-thiodiazole (HUGERSHOFF), A., i, 865.

1:5-Di-p-toluidino- β -methylanthraquinone, bromo- and chloro-derivatives (BADISCHE ANILIN- & SODA-FABRIK), A., i, 498.

Ditolyldihydrazone-oxalacetic acid, ethyl ester (RABISCHONG), A., i, 55.

Ditolyliodinium hydroxides and salts (WILLGERODT and UMBACH), A., i, 744.

Ditolyl-methyl- and -ethyl- ψ -dithiobiurets (JOHNSON and CRAMER), A., i, 753.

Di-p-tolyloxanilide, *dithio-* (v. MEYER and HEIDUSCHKA), A., i, 808.

α -Ditolyloxypropanes, β -hydroxy-. See *s*-Glycerol ditolyl ethers.

Di-p-tolylphenylthiocarbamide, *dithio-* (v. MEYER and HEIDUSCHKA), A., i, 809.

Di-p-tolylphosphoric amidine (CAVEN), T., 1048; P., 201.

Ditolyliopropylphosphorous acids and their salts (BOYD), T., 1138; P., 202.

2:6-Di-p-tolylypyridine and its salts (SCHOLTZ and WIEDEMANN), A., i, 437.

2:3-Di-o-tolyl- ψ -thiohydantoin and its benzylidene derivative (WHEELER and JAMIESON), A., i, 522.

Di-p-tolyl-o-tolyl-oxamide and -thiocarbamide, *dithio-* (v. MEYER and E. MEYER), A., i, 810.

Di-p-tolyl-m-tolylloxamide, *dithio-* (v. MEYER and E. MEYER), A., i, 810.

3:5-Di-p-tolyl-1-m-xylyltriazole, synthesis of (v. WALTHEI and KRAMBIEGEL), A., i, 661.

Diuresis, studies on (FILEHNE; RUSCHHAUPT; POTOTZKY; ERCKLENTZ), A., ii, 33; (FILEHNE and RUSCHHAUPT; FILEHNE and BIBERFELD), A., ii, 33, 501.
 saline (CUSHNY), A., ii, 91.
 See also Urine.

Diuretic action of hypertonic salt solutions (SOLLMANN), A., ii, 562.

Di-n- and -iso-valeramides (TARBOURIECH), A., i, 681.

Dianillylidene cyclopentanone (MENTZEL), A., i, 497.

cycloDi-o-xylylene, *dithio-*, and its dibromide (AUTENRIETH and BRÜNING), A., i, 272.

cycloDi-o-xylylenedisulphone (AUTENREITH and BRÜNING), A., i, 273.

Di-m-xylylethylenedisulphone, preparation of (TRÖGER and HILLE), A., i, 808.

Dodecyl alcohol (*dimethylnonylcarbinol*) (HOUBEN), A., i, 48.

Dogs, the total glycogen in (SCHÖNDORFF), A., ii, 741.

Dolomite, chemical studies of (WESTERBERG), A., ii, 302.
 from Hrubšic, Moravia (KOVÁČ), A., ii, 553.

Domeykite, artificial (STEVANOVIC), A., ii, 301.
 from the Mohawk mine, Keweenaw Co., Michigan (KOENIG), A., ii, 157.

Dregea rubicunda, glucoside from the seeds of (KARSTEN), A., ii, 171.

Dressings, surgical, testing sublimate in (FRERICHS), A., ii, 335.

Drugs, new (EINHORN and RUPPERT), A., i, 257.
 action of, on bronchial muscles (BRODIE and DIXON), A., ii, 310.
 cathartic, constituents of (OESTERLE), A., i, 356.
 estimation of phenols in (BARRAL), A., ii, 338.

Dulcitol nitrates (WIGNER), A., i, 394.

Dumortierite, composition of (FORD), A., ii, 158.

Dyeing, theory of (BINZ and SCHROETER), A., i, 109, 870; (ZACHARIAS), A., i, 193; (MEYER and MAIER), A., i, 870.

Dypnone, action of potassium hydroxide on (GESCHÉ), A., i, 484.

E.

Earthnut oil and the detection of sesamé oil in (SCHNELL), A., ii, 191.

Earths, rare, salts of, indirect oxidation by (JOB), A., ii, 214.
separation of thorium from the (METZGER), A., ii, 109.
see also Cerite metals.

E-Genic acid, synthesis of, and its methyl ester (WILLSTATTER and HOLLANDER), A., i, 361.

Echinones, *d*-, *l*-, and *r*-, crystallography of (WILLSTATTER and BODE), A., i, 361.

Echinops oil (WIJS), A., i, 602.

Edestin, hydrolysis of (ABDERHALDEN), A., i, 588.

Eggs, Fundulus, and embryos, immunity of, to electrical stimulation (BROWN), A., ii, 437.

hens', arsenic in (BERTRAND), A., ii, 499.

enzyme in the, which reduces nitrates (ABELOUS and ALOY), A., ii, 561.

of the sea-urchin, unfertilised, does potassium cyanide prolong the life of the? (GORHAM and TOWER), A., ii, 89.

Elæococca Vernicia, oil of (KAMETAKA), T., 1042; P., 200.

acids from the (MAQUENNE), A., i, 62.

Elæomargaric acid, so-called, composition of (KAMETAKA), T., 1042; P., 200.

Elæostearic acids, α - and β -, from the oil of *Elæococca Vernicia* (MAQUENNE), A., i, 62.

Elaidic acid, isomerism between oleic acid and (ALBITZKY), A., i, 227.
oxidation of, by Caro's acid (ALBITZKY), A., i, 228.

ELECTROCHEMISTRY :—

Electrochemistry of permanganic acid (INGLIS), A., ii, 352.

of compounds of iodine and oxygen (MULLER), A., ii, 629.

Electricity, non-conductivity of, by metallic hydrides (MOISSAN), A., ii, 349.

Accumulator, thallium (JONAS), A., ii, 586.

ELECTROCHEMISTRY :—

Cell, Daniell, the E. M. F. of (COM-MELIN and COHEN), A., ii, 585.
galvanic, laws relating to the E. M. F. of, based on the reciprocal action of salt solutions and soluble electrolytes (BERTHELOT), A., ii, 258.

with one and with two liquids (BERTHELOT), A., ii, 525.

depending on the reciprocal action of two saline solutions (BERTHELOT), A., ii, 51, 125, 259.

with several different liquids and identical metallic electrodes (BERTHELOT), A., ii, 626.

with two elements, E. M. F. of; transformation of energy at the electrodes (BERTHELOT), A., ii, 524.

containing the same liquids between two different or identical electrodes (BERTHELOT), A., ii, 626.

relationship of, with several liquids (BERTHELOT), A., ii, 625.

Leclanché, crystals formed in the (JAEGER), A., ii, 20.

Weston cadmium, irregularities in the (BIJL), A., ii, 7; (V. STEINWEHR), A., ii, 147; (JAEGER), A., ii, 258.

Conductivity, variation of, with temperature below 0° (KUNZ), A., ii, 261.

influence of the solvent on (PATTEN), A., ii, 57.

in amyamine (KAHLENBERG and RUHOFF), A., ii, 464.

in gases, electrolytes, and metals, principle of (STARK), A., ii, 129.

in liquid hydrogen cyanide (KAHLENBERG and SCHLUNDT), A., ii, 57.

in water and in organic solvents, influence of superfusion and of maximum density on the temperature coefficients of (CARRARA and LEVI), A., ii, 4.

of some alloys (SCHULZE), A., ii, 58.

of saturated calcium sulphate solutions (HULETT), A., ii, 260.

of casein solutions (SACKUR), A., ii, 4.

of hydrazine and of substances dissolved therein (COHEN and DE BRUYN), A., ii, 405.

of the hydrogen ion derived from transference experiments with hydrochloric acid (NOYES and SAMMET), A., ii, 126; (NOYES), A., ii, 259.

ELECTROCHEMISTRY :—

Conductivity and reflective power of metals, relation between (HAGEN and RUBENS), A., ii, 348.
 of yellow molybdic acid, action of organic acids on the (GROSSMANN and KRÄMER), A., i, 549.
 of hydrates of nickel sulphate in methyl alcohol (DE BRUYN and JUNGJUS), A., ii, 651.
 of oximino-cyanoacetic esters (MULLER), A., i, 77.
 of potassium chloride in mixtures of water and ethyl alcohol (ROTH), A., ii, 126.
 of compressed powders (STREINTZ), A., ii, 127.
 of pyridine and of α -, β -, and γ -picolines (CONSTAM and WHITE), A., i, 277.
 of certain salts in certain alcoholic solvents and in mixtures of these solvents (JONES and LINDSAY), A., ii, 55; (JONES and MURRAY), A., ii, 637.
 of sparingly soluble salts (KOHLRAUSCH, ROSE, and DOLEZALEK), A., ii, 528.
 of selenium, action of radioactive substances on the (VAN AUBEL), A., ii, 403.
 of solutions of sodium in mixtures of ethyl or methyl alcohol and water (TIJMSTRA), A., ii, 628.
 of solutions (RUDORF), A., ii, 403.
 at low temperatures (KUNZ), A., ii, 54.
 at the freezing point of water (WHEATHAM), A., ii, 405.
 of electrolytic solutions, influence of temperature on the (BOUSFIELD and LOWRY), A., ii, 52; (KOHLRAUSCH), A., ii, 403.
 of substances dissolved in certain liquefied gases (STEELE and MCINTOSH), P., 220.

Current, the passage of a direct, through an electrolytic cell (BIGELOW), A., ii, 128.
 influence of dissolved gases on conductivity for a direct (BIGELOW), A., ii, 527.
 preparation of diphenyl by the (LÖB), A., i, 20.

Current intensity, relation between, and manifestation of electrolysis (BERTHELOT), A., ii, 3.

Dielectric constant of some liquids, alteration of the, with temperature (TANGL), A., ii, 348.

Electro-affinity theory of Abegg and Bodländer (LOCKE), A., ii, 51.

ELECTROCHEMISTRY :—

Photoelectric action (WULF), A., ii, 123.

Electric discharges in gases at low pressures, laws governing (CARR), A., ii, 627.

Electrical oxidations and reductions, reaction acceleration and retardation in (RUSS), A., ii, 631.

Electroplating baths, decompositions in (JORDIS and STRAMER), A., ii, 631.

Electrodes, bipolar, use of (BROCHET and BARILLET), A., ii, 195.
 with soluble anodes (BROCHET and BARILLET), A., ii, 195.
 with insoluble anodes (BROCHET and BARILLET), A., ii, 194.
 calomel, absolute potential of the (PALMAER), A., ii, 707.
 iron, the periodic phenomena observed at (FREDENHAGEN), A., ii, 353.

Anodes, behaviour of unattackable, especially in the electrolysis of hydrochloric acid (LUTHER and BRISLEE), A., ii, 708.

aluminium, suggested theory of (TAYLOR and INGLIS), A., ii, 260.

copper, valvular action and pulverisation of (FISCHER), A., ii, 587.

lead, irregularities caused by the use of, in solutions of sodium carbonate (ELBS and STOHR), A., ii, 587.

Anodic decomposition points of aqueous sodium hydroxide solutions (PLÁK), A., ii, 52.

oxidation of metals (COEHN and OSAKA), A., ii, 261.

Cathodes, influence of the nature of, on the quantitative electrolytic separation of metals (HOLLARD), A., ii, 391.

insoluble, reduction of (WEIGHTMAN), A., ii, 196.

mercury, use of, in electrochemical analysis (SMITH), A., ii, 755.

potassium amalgam, behaviour of, in a vacuum tube (LYMAN), A., ii, 196.

Cathodic deposition of lead (ELBS and RIXON), A., ii, 427.

Electrolysis, range of validity and constancy of Faraday's law (RICHARDS and STULL), A., ii, 259.
 relation between current intensity and manifestation of (BERTHELOT), A., ii, 3.

do the ions carry the solvent with them in? (DE BRUYN), A., ii, 628.

ELECTROCHEMISTRY :—

Electrolysis, diaphragm, theory of (GUYE), A., ii, 586.
 of alkali chlorides (GUYE) A., ii, 586.
 of solutions of alkali chlorides, theory of the (FOERSTER and MULLEB), A., ii, 350.
 of alkali sulphides (BROCHET and RANSON), A., ii, 477.
 of alkaline-earth sulphides (BROCHET and RANSON), A., ii, 478.
 of barium sulphide with a diaphragm (BROCHET and RANSON), A., ii, 478.
 of formic and oxalic acids and of potassium carbonate (SALZER), A., ii, 129.
 of hydrochloric acid, apparatus for the : lecture experiment (RUPP), A., ii, 69.
 of fused lead chloride (APPELBERG), A., ii, 630 ; (LORENZ), A., ii, 631.
 of fused potassium hydroxide (LE BLANC and BRODE), A., ii, 75.
 of solutions of potassium iodide (FOERSTER and GYR), A., ii, 352.
 of mixtures of salts (LEDUC), A., ii, 6.
 of salt solutions, behaviour of diaphragms in the (HITTORF), A., ii, 406.
 of fused sodium hydroxide (LE BLANC and BRODE), A., ii, 18, 75, 144 ; (LORENZ), A., ii, 144.
 of solutions of sodium hydroxide containing lead (ELBS and FORSELL), A., ii, 5.
 of aqueous solutions (FRENZEL), A., ii, 528.
 of water (WHITNEY), A., ii, 406.

Electrolytes, abnormal (WALDEN), A., ii, 408.
 condition of, in aqueous solution (HANTZSCH), A., ii, 55.
 spectrophotometric study of some, in solution (VAILLANT), A., ii, 253.
 existence of free ions in aqueous solutions of (OLSEN), A., ii, 53.
 dissociation of (LIEBENOW), A., ii, 128.

Electrolytic deposition of copper and zinc (SMITH), A., ii, 334.
 of metals (DENSO), A., ii, 575.

Electrolytic dissociation, theory of, in solvents other than water (CARRARA), A., ii, 708.
 theory of, and the osmotic theory (TRAUBE), A., ii, 63.
 in gases, electrolytes, and metals, principle of (STARK), A., ii, 129.

ELECTROCHEMISTRY :—

Electrolytic formation of metallic oxides (COEHN and GLASER), A., ii, 80.

Electrolytic oxidation of pyrogallol (A. G. and F. M. PERKIN), P., 58.
 of toluene-*p*-sulphonic acid (ŠEBOR), A., i, 554.

Electrolytic preparation of alcohols, aldehydes, and ketones (MOEST), A., i, 546.
 of amines (KNUDSEN), A., i, 795.
 of azobenzene (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 662.
 of calcium (RUFF and PLATO), A., ii, 19, 211 ; (BORCHERS and STOCKEM), A., ii, 19, 145, 211 ; (ARNDT), A., ii, 76 ; (GOODWIN), A., ii, 725.
 of hydroxylamine (BOEHRINGER & SÖHNE), A., ii, 287.
 of iodform from acetone (ABBOTT), A., i, 305.
 of iron (SKRABAL), A., ii, 22.
 of nitric oxide from nitrogen (MUTHMANN and HOFER), A., ii, 206.
 of sodium amalgam (SHEPHERD), A., ii, 210.
 of strontium (BORCHERS and STOCKEM), A., ii, 19.
 of persulphates (LEVI), A., ii, 474.
 of tetramethyldiaminobenzhydrol (ESCHERICH and MOEST), A., i, 89.

Electrolytic reduction of acetylacetone-dioxime (TAFEL and PFEFFERMANN), A., i, 287.
 of unsaturated acids (MARIE), A., i, 605.
 of ketones (ELBS and BRAND), A., i, 99.
 of acid solutions of molybdic anhydride (CHILESOTTI), A., ii, 730.
 of aromatic nitro-compounds, influence of the cathode material on the (LÓÓ), A., i, 20.
 of *m*-nitroacetophenone and *m*-nitrobenzophenone (ELBS and WOGRINZ), A., i, 635.
 of nitrobenzenesulphonic acids (ELBS and WOHLFAHRT), A., i, 80, 212 ; (WOHLFAHRT), A., i, 203.
 of *m*-nitrophenol in alkaline and in acid solutions (KLAPPERT), A., i, 85.
 of *p*-nitrotoluene (GOECKE), A., i, 615.
 of oximes to amines (BOEHRINGER & SÖHNE), A., i, 550.

ELECTROCHEMISTRY :—

Electrolytic reduction of pheno- and naphtha-morpholones (LEES and SHEDDEN), T., 750; P., 132.

of potassium chlorate (BURROWS), A., ii, 7; (BROCHET), A., ii, 210, 352; (TOMMASI), A., ii, 426.

of stilbene derivatives (ELSS and KREMAN), A., i, 584.

Electrolytic solutions, influence of temperature on the conductivity of (BOUSFIELD and LOWRY), A., ii, 52; (KOHLRAUSCH), A., ii, 403.

of platinum by alternating currents (RUER), A., ii, 407, 528.

Electrolytic synthesis of hydrogen cyanide (GRUSZKIEWICZ), A., i, 327.

in the group of nitro-derivatives (ULPIANI and GASPARINI), A., i, 150.

Electromotive behaviour of cadmium amalgams (BIJL), A., ii, 6; (JAEGER), A., ii, 258.

of cerium oxides (BAUR and GLAESNER), A., ii, 586.

Electromotive force and chemical potential (BANCROFT), A., ii, 627.

of alloys of tin, lead, and bismuth (SHEPHERD), A., ii, 196.

of the gas element (PREUNER), A., ii, 51.

of salt solutions, general relationship between the (BERTHELOT), A., ii, 526.

law relating to the, developed by reciprocal actions of saline solutions (BERTHELOT), A., ii, 464.

law of the, of salt solutions, influence of temperature on the (BERTHELOT), A., ii, 259.

of voltaic elements based on the reciprocal action of salt solutions and soluble electrolytes, law relating to the (BERTHELOT), A., ii, 258.

Ions, existence of free, in aqueous solutions of electrolytes (OLSEN), A., ii, 53.

resistance of the, and the mechanical friction of the solvent (KOHLRAUSCH), A., ii, 403.

oxidisable, stability of salts with (ABEGG), A., ii, 628.

law of the recombination of (LANGEVIN), A., ii, 587.

colour of (PFLÜGER), A., ii, 628.

poisonous action of (LOEB and GIES), A., ii, 167.

ELECTROCHEMISTRY :—

Ions of a salt vapour, speed of, and the Hall effect (MOREAU), A., ii, 196.

Ionisation, and excited radioactivity of the atmosphere (RUTHERFORD and ALLEN), A., ii, 123.

spontaneous, in air at different temperatures and pressures (PATERSON), A., ii, 194.

of a flame containing salt (MOREAU), A., ii, 125.

of gases (LANGEVIN), A., ii, 263.

of dithiocarbamide di-iodide (MARSHALL), A., i, 16.

Ionisation coefficients (WALKER and ROBERTSON), A., ii, 412.

Ionising capacity of solvents (COFFETTI), A., ii, 404.

Ionic migration experiments to determine the constitution of salts (KREMAN), A., ii, 54, 465; (BREDIG), A., ii, 263.

Polarisation capacity (KRÜGER), A., ii, 707.

Polarisation, cathodic, formation and significance of sodium alloys in (SACK), A., ii, 349.

galvanic, steady current in, regarded as a diffusion problem (COTTRLELL), A., ii, 258.

Depolarisation, cathodic, diminution of, by potassium chromate (MÜLLER), A., ii, 127.

Potentials, oxidation and reduction (SCHAUM and VON DER LINDE), A., ii, 464.

Absolute potential of the calomel electrode (PALMAER), A., ii, 707.

Amalgam potentials (REUTER), A., ii, 51.

Anode potentials in the formation of lead carbonate and chromate (JUST), A., ii, 629.

Potential differences with saturated solutions (MCINTOSH), A., ii, 526.

which occur at the surface of contact of two different non-miscible liquids in which a dissolved electrolyte has distributed itself (VAN LAAR), A., ii, 258.

Transport numbers, direct measurement of (DENISON), A., ii, 709.

influence of the solvent on the (CARRARA), A., ii, 708.

Elements, numerics of the (MILLS), A., ii, 472.

attempt to explain physically the periodic regularity of the (BATSCHINSKI), A., ii, 416.

Elements, physical properties of the, from the standpoint of van der Waals' equation of condition (TRAUBE), A., ii, 355.

relationship between the spectra of some, and the squares of their atomic weights (WATTS), A., ii, 253, 654.

Eleimi, Carana, from Protium Carana (TSCHIRCH and SAAL), A., i, 430. oil from (TSCHIRCH and SAAL), A., i, 430.

Ellagic acid, and its potassium salt (PERKIN and WILSON), T., 133. constitution of (GRAEBE), A., i, 262.

Emanations. See under Photochemistry.

Emodin, constitution of, and its monomethyl ether and diacetyl derivative (JOWETT and POTTER), T., 1327; P., 220.

Emulsin, as obtained from almonds, is a mixture of enzymes (BOURQUELOT and HÉRISSEY), A., i, 544. action of, on acids and salts (SLIMMER), A., i, 218. action of, on salicin and amygdalin (HENRI and LALOU), A., i, 643; ii, 678.

Enargite (STEVANOVIC), A., ii, 301.

Enhydrina poisoning (ROGERS), A., ii, 676.

Enzyme action, studies on (ARMSTRONG), T., 1305; P., 209. reversibility of (HILL), T., 578; P., 99.

Enzymes and protoplasm (BOKORNY), A., ii, 324. nomenclature of (v. LIPPMANN), A., i, 304. general characters of the, which effect the hydrolysis of the polysaccharides (BOURQUELOT), A., i, 378, 452; (BOURQUELOT and HÉRISSEY), A., i, 551. isolation of the, which effects anaerobic respiration in the cells of higher plants and animals (STOKLASA and CZERNY), A., i, 320. hydrolysis of carbohydrates of high molecular weight by (BOURQUELOT), A., i, 378. action of abietic acid on (EFFRONTE), A., ii, 565. action of, on acids and salts (SLIMMER), A., i, 218. action of, on triacetyl dextrose (ACREE and HINKINS), A., i, 218. action of, in the organism (BACH and BATTELLI), A., ii, 560. aluminium compounds acting as (GUSTAVSON), A., i, 470, 804.

Enzymes, autolytic, influence of, on pancreatic digestion (HALPERN), A., ii, 738. in blood which causes the decomposition of hydrogen peroxide (VILLE and MOITESSIER), A., ii, 120, 737. in the hen's egg which reduces nitrates (ABELOUS and ALOY), A., ii, 561. fat-splitting, of gastric juice (VOLHARD), A., ii, 494. in the human kidney (BATTESTI and BARRAJA), A., ii, 561. kidney, proteolytic action of (DAKIN), A., ii, 671. the glycogen-splitting, of the liver (PICK), A., ii, 160. of milk (WENDER), A., i, 590. which decomposes salol, existence of, in human and asses' milk (DESMOULIÈRES), A., ii, 312, 667. in mould fermentations (BUCHNER and MEISENHEIMER), A., ii, 318. of the pylorus (KLUG), A., ii, 86. of the tea leaf (MANN), A., ii, 388. which reduces nitrates in vegetables (ABELOUS and ALOY), A., ii, 678. of sour wine, production of mannitol by the (MAZÉ and PERRIER), A., ii, 745. pancreatic, precipitability of, by alcohol (VERNON), A., ii, 438. proteolytic, of malt (SCHIDROWITZ), A., ii, 680; (WEISS), A., ii, 747. in plants (VINES), A., ii, 321; (JAVILLIER), A., ii, 506. of yeast (SCHUTZ), A., i, 379. reducing (POZZI-ESCOL), A., i, 670.

Enzymes. See also :—

- Catalase.
- Cellulase.
- Cerebrin.
- Diastases.
- Emulsin.
- Fibrin-ferment.
- Hæmase.
- Invertase.
- Jaquemase.
- Kinase.
- Lactase.
- Lipase.
- Nuclease.
- Oxydases.
- Oxygenases.
- Pepsin.
- Peroxydases.
- Philothion.
- Protrypsin.
- Rennin.
- Seminase.
- Spermin.
- Trypsin.
- Tyrosinase.

Enzyme-secretions, estimation of, in the stomach (VOLHARD and STADE), A., ii, 120.

Ephedrine and its salts and derivatives (MILLER), A., i, 110.

Epichlorohydrin, action of, on the sodium derivative of acetonedicarboxylic esters (HALLER and MARCH), A., i, 318, 714.

Epidote, composition of (ZAMBONINI), A., ii, 84.

Epilepsy, blood changes in (PUGH), A., ii, 307.

Epileptic fits, abnormal constituents of the urine in (INOUYE and SAIKI), A., ii, 317.

Epinephrine (ABEL), A., i, 670.
and its compounds (ABEL), A., i, 784.
oxidation of, with nitric acid (ABEL), A., i, 376.
physiological action of (AMBERG), A., ii, 314.
See also Adrenaline.

Epsomite, higher temperature limit of formation of (VAN'T HOFF and MEYERHOFFER), A., ii, 555.

Equation of condition, the variability of the quantity b of the (VAN DER WAALS), A., ii, 412.

EQUILIBRIUM :—

- Phase rule** (VAN'T HOFF), A., ii, 135 ; (WEGSCHEIDER), A., ii, 356.
proof of Gibbs' (WEGSCHEIDER), A., ii, 356, 413 ; (NERNST), A., ii, 356.
idea of independent components (WEGSCHEIDER), A., ii, 356, 413 ; (NERNST), A., ii, 356 ; (VAN LAAR), A., ii, 536.
application of the, to the distillation of turpentine (VEZÈS), A., ii, 535.
application of, to the melting points of copper, silver, and gold (RICHARDS), A., ii, 266.
- Equilibria** of phases in the system : acetaldehyde — paracetaldehyde, with and without molecular transformation (ROOZEBOOM), A., ii, 135.
- Equilibrium**, the triple point ; a theorem of Tammann (SAUREL), A., ii, 15.
- physical and natural, between the modifications of acetaldehyde (ROOZEBOOM), A., ii, 135 ; (HOLL-MANN), A., ii, 414.
- condition diagram of phenol (TAMMANN), A., ii, 15.
- transition of polymorphous substances (MEYER), A., ii, 137.
- Phases**, representation in space of the regions in which solid, occur (ROOZEBOOM), A., ii, 135.

Erepsin, presence of, in Basidiomycetes (DELEZENNE and MOUTON), A., ii, 448.

Ergot, detection of, in flour (MEDICUS and KOBER), A., ii, 251.

Ericolin, composition of (KANGER), A., i, 771.

Erucic acid, isomerism between brassidic acid and (ALBITZKY), A., i, 227.
oxidation of, by Caro's acid (ALBITZKY), A., i, 228.

Erythrite, artificial production of (DE SCHULTEN), A., ii, 655.

Erythritol, action of phosphoric acid on (CARRÉ), A., i, 307.
action of phosphorous acid on (CARRÉ), A., i, 456.

Eschscholtzia californica, alkaloids of (FISCHER and TWEEDEN), A., i, 193.

Essences, estimation of, in absinths (SANGLÉ-FERRIÈRE and CUNIASSE), A., ii, 247.
estimation of ethyl alcohol in (THORPE and HOLMES), T., 314 ; P., 13.

Esterification, mechanism of (KAHN), A., i, 98, 696 ; (WEGSCHEIDER), A., i, 559.
of *as-di-* and *-poly-basic acids* (WEGSCHEIDER and FURCHT), A., i, 342 ; (WEGSCHEIDER and v. RUŠNOV), A., i, 702 ; (WEGSCHEIDER and HECHT), A., i, 760.
of the mineral acids (VILLIERS), A., i, 599, 674, 732.
of phosphorous acid (SACHS and LEVITSKY ; SACHS ; LEVITSKY), A., i, 733.
of sulphuric acid (VILLIERS), A., i, 599.

Esters, fermentative decomposition of (BRAUN and BEHRENDT), A., ii, 565.
saponifying action of serum on (DOYON and MOREL), A., ii, 560.
formation of alcohols from the reduction of (BOUVEAULT and BLANC), A., i, 597, 673, 730.

Esters, α -nitro-, synthesis of (ULPIANI), A., i, 791.

Ethane and methyl alcohol, critical curve of mixtures of (KUENEN), A., ii, 410.

Ethane, $\alpha\beta$ -trichloro-, and α -chloro- $\alpha\beta$ -dibromo- (BILTZ), A., i, 1.
s-tetranitro-. See Ethanedinitrionic acid, dinitro-.

Ethanedicarboxylic acids. See :—
Succinic acid.
Methylmalonic acid (*isosuccinic acid*).
Ethanedimethylmalonylic acid, $\alpha\beta$ -di-nitro-, methyl ester (PERKIN), T., 1220.

Ethanodinitrionic acid, dinitro- (*s-tetra-nitroethane*), hydrolysis of (SCHOLL and SCHMIDT), A., i, 137.

Ethanetetracarboxylic acid, dinitro-, ethyl ester, electro-synthesis of (ULPIANI and GASPARINI), A., i, 150.

Ethanolamine, and its acyl derivatives (KNORR and ROSSLER), A., i, 465.

Ethanoethylenediamine and its platinichloride (KNORR and BROWNSDON), A., i, 153.

Ethenyldiaminonaphthalene (*methyl-naphthiminoazole*) and its salts, and its *N*-methyl and *N*-ethyl derivatives and their salts (MELDOLA, EYRE, and LANE), T., 1190; P., 205. (Prager's) and its *N*-ethyl derivative and their salts (MELDOLA, EYRE, and LANE), T., 1196; P., 205.

Ethenyltriaminonaphthalene and its salts, and the *N*-ethyl derivative of the acetyl compound and its salts (MELDOLA, EYRE, and LANE), T., 1185; P., 205. (Markfeldt's), its formation from its isomeride and its salts and derivatives (MELDOLA, EYRE, and LANE), T., 1198; P., 205.

Ethenyldiantranilic acid. See *N-o-Acetylaminobenzoylanthranilic acid*.

Ethenyltetramethylenediamine and its salts (HAGA and MAJIMA), A., i, 291.

Ethenyltrimethylenediamine. See *2-Methyltetrahydropyrimidine*.

Ether. See *Ethyl ether*.

Ether, $C_9H_{16}O$, from the action of alcoholic potassium hydroxide on suberyl bromide (MARKOWNIKOFF), A., i, 239.

Etherification with the hydracids (VILLIERS), A., i, 598.

Ethers, mixed, of tertiary alcohols, preparation of (LAZINSKY and SWADKOWSKY), A., i, 394. See also *Chloro-ethers* and *Nitro-ethers*.

o-Ethopropenylphenol and its acyl derivatives and ethers (MOUNIÉ), A., i, 483.

Ethoxide, calcium (DOBÉ), A., i, 546.

2-p-Ethoxyanilinopyridine (FISCHER and MERL), A., i, 52.

4-Ethoxyazoxybenzene, 3:5-dibromo- (JACKSON and FISKE), A., i, 689.

m-Ethoxybenzaldehyde, condensation of, with isobutaldehyde (SUBAK), A., i, 493.

p-Ethoxybenzoic acid (BODROUX), A., i, 344.

Ethoxybenzonitrile, chloronitro-, van Heteren's, constitution of (BLANKSMA), A., i, 342.

6-Ethoxybenzonitrile, 3-chloro-2:5-dinitro-, and 3-chloro-5-nitro-2-amino- (BLANKSMA), A., i, 342.

α-Ethoxybenzylnitroacetophenone (WIELAND), A., i, 768.

Ethoxy-β-campholytic acid (PERKIN), T., 861.

2-Ethoxydiphenylamine, dichloro-2':4'-dinitro- (REVERDIN and CRÉPIEUX), A., i, 858.

6-Ethoxy-1-ethylquinolone and 5-bromo- (HOWITZ and BARLOCHER), A., i, 279.

3-Ethoxy-5-keto-1-phenyl-4:5-dihydro-triazole, and its 4-methyl derivative (ACREE), A., i, 867.

Ethoxyl, simplification of Zeisel's method of estimating (PERKIN), T., 1367; P., 239.

6-Ethoxy-1-methyl-2-quinolone (DECKER and ENGLER), A., i, 518.

5-bromo- (HOWITZ and BARLOCHER), A., i, 279.

Ethoxymethylthioldiphenylthiodiazoline (BUSCH, KAMPHAUSEN, and SCHNEIDER), A., i, 531.

Ethoxymethylthiophenyl-p-tolylthio-diazoline (BUSCH and BLUME), A., i, 535.

2-Ethoxy-α-naphthaldehyde (BARTSCH), A., i, 649.

compound of, with ethyl cyanoacetate (HELBONNER), A., i, 764.

2-Ethoxy-α-naphthoic acid (BODROUX), A., i, 420.

2-Ethoxy-α-naphthylideneacetylacetone (HELBONNER), A., i, 764.

β-p-Ethoxyphenylhydantoin and its γ -alkyl compounds, and their bromo-derivatives (FRERICHS and BREUSTEDT), A., i, 17.

p-Ethoxyphenyl-hydrophthalamic and -phthalamic acids (PIUTTI and ABATTI), A., i, 424.

Ethoxy-α-phenylpentenecarboxylic acid (DIMROTH and FEUCHTER), A., i, 630.

Ethoxypinene, iodo-derivatives of (DENARO and SCARLATA), A., i, 844.

6-Ethoxy-2-propylquinol (THOMS), A., i, 558.

6-Ethoxyquinoline, 5-bromo-, and its methiodide and ethobromide (HOWITZ and BARLOCHER), A., i, 279.

α-Ethoxystyrene, β -nitro- (WIELAND), A., i, 768.

4-Ethoxy-m-xylene-5-sulphonic acid and its salts (JUNGHAHN), A., i, 23.

Ethyl alcohol, production of, in phenograms (TAKAHASHI), A., ii, 170.

determination of the purity of, by its critical temperature of solution (CRISMER), A., ii, 10.

Ethyl alcohol, velocity of action of bromine on (BUGARSZKY), A., ii, 276.
 catalytic decomposition of (IPATIEFF), A., i, 453.
 catalytic decomposition of, by finely divided metals (SABATIER and SENDERENS), A., i, 393.
 decomposition of, at high temperatures with carbon, aluminium, and magnesium (EHRENFIELD), A., i, 306.
 variations in density of mixtures of water and (VITTENET), A., i, 221.
 oxidation of (SLABOSZEWCZ), A., i, 150.
 condensation of, with heptyl alcohol (GUERBET), A., i, 61.
 action of, on gastric secretion (WALLACE and JACKSON), A., ii, 308.
 action of, on protoplasm (LEE), A., ii, 314.
 effect of, on uric excretion (CHITTENDEN and BEEBE), A., ii, 562.
 toxicity of (GRÉHANT), A., ii, 317.
 influence of, on proteid metabolism (ROSEMAN), A., ii, 384.
 estimation of, in essences and medicinal preparations (THORPE and HOLMES), T., 314; P., 13.
 estimation of, in dilute solutions (ARGENSON), A., ii, 46.
 estimation of, in wines by weight (DEMICHEL), A., ii, 337.
 estimation of methyl alcohol in presence of (THORPE and HOLMES), P., 285.

Ethyl alcohol, difluoro- (SWARTS), A., i, 222, 725.

Ethyl bromide, compounds of, with bromine, aluminium bromide, and carbon disulphide (PLOTNIKOFF), A., ii, 137.

physiological action of (COLE), A., ii, 502.

dibromo- and imino-dithiocarbonates (PLOTNIKOFF), A., i, 137.

tert.-butyl ether (LAZINSKY and SWADKOWSKY), A., i, 394.

chloride, influence of, on blood gases (LIVON), A., ii, 161.

difluoro- (SWARTS), A., i, 223.

chlorocarbonate, action of, on magnesium alkyl haloids (HOUBEN), A., i, 825.

action of, on thiocarbamides (DIXON), T., 550; P., 104.

Ethyl ether, heat of formation of the compound of hydroferrocyanic acid with (CHRÉTIEN and GUINCHANT), A., i, 612; ii, 589.

Ethyl ether, contraction on mixing, with chloroform (GEORGIEWSKY), A., i, 223.
 detection of peroxides in (JORISSEN), A., ii, 579.
 estimation of, by densimetry (WALLER), A., ii, 699.
 densimetric estimation of the pulmonary absorption of the vapour of (WALLER), A., ii, 699.

Ethyl ether, dinitro- (MEISENHEIMER), A., i, 223.

Ethyl ferrisulphate (REOURA), A., ii, 600.

iminodithiocarbonate hydriodide (DE LÉPINE), A., i, 237.

mercaptan, action of aryl thiocyanates on (SPAHR), A., i, 478.

nitrite, chloro- (HENRY), A., i, 223.

phosphite (LEVITSKY), A., i, 733.

p-Ethylallylbenzene (KUNCKELL), A., i, 617.

Ethylallyltetrahydroquinolinium iodide and platinichloride (WEDEKIND and OECHSLER), A., i, 116.

Ethylamine, oxidation of (BAMBERGER), A., i, 152.

N-benzoyl derivative of, N-chloro- (SLOSSON), A., i, 476.

Ethylaminoacetethylamide (EINHORN and HÜTZ), A., i, 90.

β -Ethylamino- α -cyanocinnamic acid, methyl ester (SCHMITT), A., i, 399.

4-Ethylamino-2:4-dihydroxydiphenylmethane (FRIEDLÄNDER and v. HORVATH), A., i, 253.

N-Ethyl-o-aminophenol (LEES and SHEDDEN), T., 756; P., 132.

p-Ethylaminophenyl-2:7-dihydroxynaphthylmethane (FRIEDLÄNDER and v. HORVATH), A., i, 253.

p-Ethylaminophenyl- α - and β -hydroxynaphthylmethanes (FRIEDLÄNDER and v. HORVATH), A., i, 253.

3-Ethylaminotoluene, 2:4:6-trinitro-, and its nitroamine (BLANKSMA), A., i, 164.

5-Ethylamino-m-xylene, 2:4:6-trinitro-, and its nitroamine (BLANKSMA), A., i, 164.

S-Ethyl-N-isoamyldithiourethane (v. BRAUN), A., i, 15.

Ethylianiline and its oxalate (BAMBERGER and TICHWINSKY), A., i, 131, 371; (HARRIES), A., i, 293.

Ethylianiline, bromonitro-derivatives (BLANKSMA), A., i, 333.

3:4-dichloro-6-nitro- (BLANKSMA), A., i, 334.

Ethylianilinoacetic acid, amide and nitrile of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 754.

p-Ethylbenzaldehyde and its hydrazone, oxime, and semicarbazone (FOURNIER), A., i, 347.

Ethylbenzene and toluene, vapour pressures and boiling points of mixtures of (YOUNG and FORTSEY), T., 52.

Ethylbenzene, *p*-amino-, *p*-iodo- and *p*-idoxy- (WILLGERODT and BERGDOLT), A., i, 745.

p-iodo-, containing polyvalent iodine, derivatives of (WILLGERODT and BERGDOLT), A., i, 745.

N-Ethylbenzimino-ethers (LANDER), T., 320; P., 16.

Ethylbenzylidene-aniline and -toluidine, preparation of (FOURNIER), A., i, 347.

β -Ethylbutyric acid. See Hexoic acid.

β -Ethyl- γ -butyrolactone (FICHTER and BEISSWENGER), A., i, 459.

α -Ethylbutyrylcarbamide as a narcotic (FISCHER and v. MERING), A., i, 552.

β -Ethylbutyrylcarbamide (GEBRUDER VON NIESSEN), A., i, 798.

1-Ethylcoumarone, α -amino-, and its salts (STOERMER and SCHAFFER), A., i, 847.

α -Ethylhydrosorbie acid (*octenoic acid*), β -hydroxy-, and its ethyl ester and salts (JAWORSKY and REFORMATSKY), A., i, 4; (JAWORSKY), A., i, 729.

ρ -Ethyl diphenyliodinium hydroxide and salts (WILLGERODT and BERGDOLT), A., i, 745.

S-Ethyl-N-dipropylthiourethane (v. BRAUN), A., i, 14.

Ethylene derivatives, new isomerism of (ERLENMEYER), A., i, 697.

Ethylene, *tri-* and *tetra*-bromo- and dibromodiiodo- (LEMOULT), A., i, 595.

chloro-, and α -chloro- β -bromo- (BILTZ), A., i, 1.

Ethylene bromide, action of hydrazine hydrate on (STOLLÉ), A., i, 305.

dichloride, decomposition of (BILTZ), A., i, 1.

chlorhydrin, action of triethylphosphine on (PARTHEIL and GRONOVER), A., i, 801.

glycol, action of phosphorus trichloride on (CARRÉ), A., i, 405.

metabolism of (MAYER), A., ii, 495.

oxide, action of, on magnesium organic compounds (GRIGNARD), A., i, 552.

Ethylenebismorpholine and its salts (KNORR and BROWNSDON), A., i, 153.

Ethylenebistetrahydroquinoline (WEDEKIND and OECHSLEN), A., i, 517.

2-Ethylenebistetrahydroisoquinolinium-2 acetic acid, ethyl ester, iodide of, and its isomeride (WEDEKIND and OECHSLEN), A., i, 517.

Ethylene carbamide picrate (KLUT), A., i, 327.

Ethylenediamine, compounds of, with cadmium salts (BARBIER), A., i, 403.

Ethylenedicarboxylic acids. See Fumaric acid, and Maleic acid.

Ethylenedimethylmalonylic acid, $\alpha\beta$ -dinitroso-, methyl ester (PERKIN), T., 1221.

Ethylenethiocarbamide, preparation, properties, and desulphuration of (KLUT), A., i, 327.

Ethylcycloheptane. See Ethylsuberane.

ϵ -Ethylhydantoin and β -nitro- (HARRIES and WEISS), A., i, 739.

Ethylidene dichloride, decomposition of (BILTZ), A., i, 1.

Ethylideneanthranilic acid, trichlorodinitro- (v. NIEMENOWSKI), A., i, 91.

Ethylidenebisacetylacetone (KNOEVENAGEL), A., i, 638.

3-Ethylidenebis-4-hydroxycoumarin (ANSCHÜTZ), A., i, 271.

Ethylenedini-*o*-, *m*-, and *p*-nitroanilines, trichloro- (WHEELER and WELLER), A., i, 246.

Ethyl- α - and β -naphthylamines, evaluation of (VAUBEL), A., ii, 395.

Ethylnitrobenzamide (SLOSSON), A., i, 476.

Ethyl octyl ketone, formation of, from methyl nonyl ketone, and its oxime and semicarbazone (MANNICH), A., i, 679.

2-Ethylol-1:4-dimethylbenzene (KLAGES and KEIL), A., i, 554.

5-Ethylol-1:2:4-triethylbenzene and its phenylurethane (KLAGES and KEIL), A., i, 553.

p -Ethylphenyldichloroethyl iodinium salts (WILLGERODT and BERGDOLT), A., i, 746.

p -Ethylphenylglyoxylic acid and its ethyl ester (FOURNIER), A., i, 347.

p -Ethylphenyl- α -naphthyl iodinium hydroxide and salts (WILLGERODT and BERGDOLT), A., i, 746.

p -Ethylphenyl- α -tolyl iodinium hydroxide and salts (WILLGERODT and BERGDOLT), A., i, 746.

Ethylisopropyl. See Amyl.

3-Ethylpyridine, formation of, by Ladenburg's reaction, and its salts (TSCHITSCHIBABIN), A., i, 853.

1-Ethyl-2-quinolone, 6-hydroxy- (HOWITZ and BARLOCHER), A., i, 279.

1-Ethyl-2-quinolone, 8-hydroxy- (DECKER and ENGLER), A., i, 518.
8-nitro- (DECKER and STAVROLOPOULOS), A., i, 719.

a-Ethylsorbic acid (*octinoic acid*) and its salts (JAWORSKY), A., i, 729.
 synthesis of (JAWORSKY and REFORMATSKY), A., i, 4.

Ethylsuberane (*ethylcycloheptane*) MAR-KOWNIKOFF and JACOB), A., i, 239.

a-Ethylsuccinic acid (*butanedicarboxylic acid*), β -amino-, and its silver salt (LUTZ), A., i, 148.
 β -hydroxy-, and its amide and silver salt (LUTZ), A., i, 147.

5-Ethylthiolacridol and its salts (EDINGER and RITSEMA), A., i, 719.

Ethylthiodiphenylthiodiazoline, bromo- and iodo-derivatives (BUSCH and SPITTA), A., i, 533.

Ethylthiodiphenyl-4-tolyl- and -naphthyl-dihydrotriazoles, iodo- (BUSCH and SPITTA), A., i, 534.

3-Ethylthiol-5-keto-1-phenyl-4:5-di-hydrotriazole (ACREE), A., i, 867.

2-Ethylthiopyrimidine, 6-amino- and 6-chloro- (WHEELER and JOHNSON), A., i, 526.

Ethylthioltriphenyldihydrotriazole, hydroxy- and iodo- (BUSCH and SPITTA), A., i, 534.

Eucalyptus, relation between leaf venation and the presence of certain chemical constituents in the oils of (BAKER and SMITH), A., ii, 234.

Eucalyptus Macarthuri, chemical constituents of (SMITH), A., i, 842.

Euchinal (DOKKUM), A., i, 504.

Eugenol and its methyl ether from the oil of *Cinnamomum pedatinervium* of Fiji (GOULDING), T., 1097; P., 201.
 estimation of, in oil of cloves (SPURGE), A., ii, 578.

Eugenol-alcohol (MANASSE), A., i, 28.

Euphorbia candelabro, latex of (REBUFFAT), A., ii, 95.

Euphorbone (OTTOW), A., i, 641.

Evernuric acid and Evernurol (HESSE), A., i, 703.

Excretion of ammonium urate and sodium indigotinsulphonate by the serpents' kidneys (TRIBONDEAU), A., ii, 672.
 of glycuronic acid (MAYER), A., ii, 501.
 of hippuric acid, influence of quinic acid on the (HUPFER), A., ii, 442.
 of indican, and indole formation in rabbits during inanition (ELLINGER), A., ii, 670.

Excretion of purine derivatives (BURIÁN and SCHUR), A., ii, 313.
 of sodium chloride in normal faeces and in diarrhoea (JAVAL), A., ii, 670.
 of uric acid, effect of alcohol on the (CHITTENDEN and BEEBE), A., ii, 562.
 influence of quinic acid on the (TAL-TAVALL and GIES), A., ii, 563.
 See also Urine.

Exercise, influence of, on human muscle (STOREY), A., ii, 309.
 influence of, on urinary secretion (GARRATT), A., ii, 313.

Expansion of gases, apparatus for measuring the, with temperature under constant pressure (RICHARDS and MARK), A., ii, 409.
 of fused quartz (HOLBORN and HENNIG), A., ii, 272.

Explosion in gases, influence of pressure on the propagation of (DE HEMPTINNE), A., ii, 199.
 of gases, movements of the flame in the (DIXON), A., ii, 273.

Extract, estimation of, in wines by weight (DEMICHEL), A., ii, 337.

Extraordinary General Meeting, P., 199.

F.

Faeces, nuclein bases of (SCHITTENHELM), A., ii, 672.
 excretion of sodium chloride in (JAVAL), A., ii, 670.
 estimation of ammonia in (SCHITTENHELM), A., ii, 688.
 estimation of carbohydrates in (WEISER and ZAITSCHEK), A., ii, 516.
 estimation of nitrogen and protein in (ZAITSCHEK), A., ii, 743.
 estimation of the products of putrefaction in, by means of Ehrlich's aldehyde reaction (BAUMSTARK), A., ii, 619.

Famatinitine (STEVANOVÍČ), A., ii, 301.

Faraday's law, range of validity and constancy of (RICHARDS and STULL), A., ii, 259.

Farmyard manure, action of the solid constituents of (GERLACH), A., ii, 38.
 experiments on the treatment of, with lime (REITMAIR), A., ii, 177.

Fat, synthesis of, during absorption (MOORE), A., ii, 667.
 with double melting points (KREIS and HAFNER), A., ii, 190.

Fat, fermentative hydrolysis of (CONN-STEIN, HOYER, and WARTENBURG), A., i, 218; (BRAUN and BEHRENDT), A., ii, 446, 565; (BRAUN), A., ii, 748.
action of gastric juice on (BÉNECH and GUYOT), A., ii, 558.
influence of different proteids on (PASTROVICH and ULZER), A., ii, 249.
lecithin in (JÄCKLE), A., ii, 191.
of geese, composition of (WEISER and ZAITSCHEK), A., ii, 227.
in hens, formation and composition of (ZAITSCHEK), A., ii, 740.
mesenteral, of *Thalassochelys corticata* and *Cyprinus carpio* (ZDAREK), A., ii, 499.
of tubercle bacilli (KRESLING), A., ii, 504.
daily variations in the amount of, in milk (SIEGFELD), A., ii, 37.
iodine absorption of (TOLMAN and MUNSON), A., ii, 458.
new method for the estimation of (LEHMANN ; VÖLTZ), A., ii, 702.
estimation of, in animal fluids (KUMAGAWA and SUTO), A., ii, 702.
estimation of, in animal matters (GLIKIN), A., ii, 458.
estimation of, in milk (SIEGFELD), A., ii, 458; (KUMAGAWA and SUTO), A., ii, 702.
use of amyl alcohol in Gerber's method for the estimation of, in milk (VAN HAARST), A., ii, 516.

Fatigue, chemistry of (HARPER and HOLLIDAY), A., ii, 226.

Felspar from Asia Minor (MILCH), A., ii, 223.
from Georgia (WATSON), A., ii, 84.

Fenchene (KONDAKOFF), A., i, 353.

Fenchyl derivatives (KONDAKOFF and SCHINDELMEISER), A., i, 711.

Fennel, bitter, oil of, Algerian and Galician (TARDY), A., i, 47.

Fermentation, changes correlative with the formation of alcohol during : distinction between alcoholated musts and true vinous liquids (GAUTIER and HALPHEN), A., ii, 564.
effects of, on the composition of cider and vinegar (BROWNE), A., ii, 231.
of bread (PARENTI), A., ii, 746.
of milk (TISSIER and GASCHING), A., ii, 743.
alcoholic (HERZOG), A., ii, 230 ; (ABERSON), A., ii, 445.
production of formic acid in (THOMAS), A., ii, 445.

Fermentation, alcoholic, with yeast extract in presence of blood-serum (HARDEN), A., ii, 319.
of the must of Indian figs with yeast acclimatised to sodium fluoride (ULPIANI and SARCOLI), A., ii, 93.
lactic acid (HERZOG), A., ii, 446.
action of magnesium salts on the (RICHET), A., ii, 230.
mould, enzymes in (BUCHNER and MEISENHEIMER), A., ii, 318.
peptic (GOYAUD), A., i, 136.

Fermentations and heat change (HERZOG), A., ii, 468.

Ferments. See Enzymes.

Feroxaloin and **Feroxaloresinotannol** (ASCHAN), A., i, 772.

Ferric compounds. See under Iron.

Ferri- and Ferro-cyanides, analysis of (DITTRICH and HASSEL), A., ii, 581.

Ferrisulphuric acid and its ethyl ester (RECOURA), A., ii, 600.

Ferrocyanic acid, manganese salt (DICKIE), A., i, 155.

Ferro-nickel briquettes, technical analysis of (JAMES and NISSEN), A., ii, 244.

Ferropallidite from Calama, Chili (SCHARIZER), A., ii, 556.

Ferrous compounds. See under Iron.

Fertilisers, rapid estimation, volumetrically, of phosphoric acid in (EMERY), A., ii, 41.
estimation of potassium in (HARE), A., ii, 511.

Fibrin ferment, nature of (PEKELHARING and HUISKAMP), A., ii, 661.

Figs, Indian, alcoholic fermentation of the must of, with yeast acclimatised to sodium fluoride (ULPIANI and SARCOLI), A., ii, 93.

Filmalone, the active constituent of Filix extract (KRAFT), A., i, 571.

Fire-damp from the coal mines of the Donetz, composition of (KURNAKOFF), A., ii, 156.

Fish-flesh, autolysis in (SCHMIDT-NIELSEN), A., ii, 163.

Fish meal, maize cakes, and wheat bran as food for pigs (KLEIN), A., ii, 37.

Fish poison, an Eastern (POWER), A., ii, 323.

Fishes, effect of sulphurous acid on (KÖNIG and HASENBÄUMER), A., ii, 748.
marine, non-prevalence of potassium salts in the spleen of (ZANETTI), A., ii, 740.

Flame, movements of the, in the explosion of gases (DIXON), A., ii, 273.

Flame containing salt, ionisation of a (MOREAU), A., ii, 125.

Flavaniline, formation of (GOLD-SCHMIDT), A., i, 440.

Flax, wax of (HOFFMEISTER), A., ii, 448.

Flour, detection of corn-cockle and ergot in (MEDICUS and KOBER), A., ii, 251.
estimation of moist gluten in (ARPIN), A., ii, 119.

Flours, wheaten, analysis of (FACCHINATO), A., ii, 393.

Fluoranthrene. See Idryl.

Fluorene, condensation of, with benzoic chloride (FORTNER), A., i, 177.
action of molten potassium hydroxide on (WEGER and DÖRING), A., i, 410.

Fluorenone, 1-amino-, and its hydrochloride and platinichloride (GOLDSCHMIEDT), A., i, 161.
1-hydroxy- (GOLDSCHMIEDT), A., i, 162.
3-hydroxy- (ULLMANN and BLEIER), A., i, 177.

Fluorenonecarboxylic acid and its chloride, amide, ethyl ester, oxime, and phenylhydrazone (GOLDSCHMIEDT), A., i, 161.

Fluorescein, dihydroxy-, and its salts, acyl and halogen derivatives, and ethers (OSOROVITZ), A., i, 489.
trihydroxy- (OSOROVITZ), A., i, 490.

Fluoresceins of substituted naphthalic anhydrides (FRANCESCONI and BARGELLINI), A., i, 37.

Fluorescence and chemical constitution (MEYER), A., ii, 706.
theory of, and action of substituents on (FRANCESCONI and BARGELLINI), A., i, 34.
of diamonds, and its influence on the photographic plate (ROSENHEIM), A., ii, 123.
of naphthalic anhydride (FRANCESCONI and BARGELLINI), A., i, 34; (HEWITT), A., i, 346.

Fluorine in bone and teeth (JODLBAUER), A., ii, 311.
liquid, reactions of, at -187° (MOISSAN and DEWAR), A., ii, 419.
solidification of, and the combination of solid fluorine and liquid hydrogen at $-252^{\circ}5$ (MOISSAN and DEWAR), A., ii, 360.
electrolytically separated, oxidation by (SKIRROW), A., ii, 69.

Hydrofluoric acid (hydrogen fluoride), potassium fluoride, and boric acid, interaction of (ABEGG, FOX, and HERZ), A., ii, 540.

Fluorine :—
Hydrofluoric acid, use of, in iron works laboratories (FRIED), A., ii, 391.

Fluorine, detection of, in beer and wine (WINDISCH), A., ii, 40.
detection of, in wine (TUSINI), A., ii, 178.
estimation of (LEININGEN-WESTERBURG), A., ii, 98.

Fodder-plants, hydrocyanic acid in (BRÜNNICH), T., 788; P., 148; (SLADE), A., ii, 233.

Fodders, estimation of cellulose and lignin in (KÖNIG), A., ii, 764.

Foods, organically combined sulphurous acid in (KERP), A., ii, 326.
vegetable, decomposition of, by Bacteria (KÖNIG, SPIECKERMANN, and OLIG), A., ii, 386, 447.
estimation of the calorific value of, by means of elementary composition (VOIT), A., ii, 384.
detection of formaldehyde in (MANGET and MARION), A., ii, 115.
detection of salicylic acid in, by the ferric chloride test (TAFFE), A., ii, 394.
detection of thiosulphates in, in presence of sulphites (ARNOLD and MENTZEL), A., ii, 573.
estimation of cellulose and lignin in (KÖNIG), A., ii, 764.
estimation of chlorine in (STRZYZOWSKI), A., ii, 450.

Formaldehyde, formation of, from methyl alcohol (GLAESSNER), A., i, 8.
action of, on acetophenone (VAN MARLE and TOLLENS), A., i, 493.
action of ammonia on (HENRY), A., i, 233.
and lime, action of, on cinnamaldehyde (VAN MARLE and TOLLENS), A., i, 493.
action of, on methylaniline (GOLDSCHMIDT), A., i, 82.
action of, on starch (SYNIEWSKI), A., i, 68.
action of, on isovaleraldehyde and on cenanthaldehyde (VAN MARLE and TOLLENS), A., i, 460.
combination of, with indigotin (HELLER and MICHEL), A., i, 834.
compounds of, with nucleic acid and its derivatives (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 543.
influence of, on the vegetation of white mustard (BOUILHAC and GIUSTINIANI), A., ii, 505.

Formaldehyde, influence of, on the growth of some fresh-water Algae (BOUILHAC), A., ii, 232.
use of, for the discrimination between basic and acidic functions in amino-acids (SCHIFF), A., i, 232.
use of, for precipitating gold and platinum (AWERKIEFF), A., ii, 603.
polymerides of (DESCUDÉ), A., i, 232.
detection of, in food and milk (MANGET and MARION), A., ii, 115.
estimation of (SCHIFF), A., ii, 341.
estimation of, in air (ROMIJN and VOORTHUIS), A., ii, 580.
estimation of, in solution (LEMME), A., ii, 768.

Metformaldehyde. See Trioxymethylene.

Paraformaldehyde, action of sodium dioxide on (VANINO), A., i, 67.

Formamide and its haloid salts (WERNER), A., i, 235.

Formazyl dyes (FICHTER and FROHLICH), A., i, 722.

Formazylbenzene, *p*-chloro-, and its *p*-sulphonic acid, potassium salt (FICHTER and FROHLICH), A., i, 723.
o-hydroxy-, and its *p*-sulphonic acid, potassium salt (FICHTER and FROHLICH), A., i, 722.

Formazylcarboxylic acid (WEISSBACH), A., i, 541.

Formazyl-*p*-sulphonic acid, nitro-, potassium salt (FICHTER and FROHLICH), A., i, 723.

Formic acid in atmospheric air (HENRIET), A., i, 600.
production of, in alcoholic fermentation (THOMAS), A., ii, 445.
synthesis of (MOISSAN), A., ii, 365.
electrolysis of (SALZER), A., ii, 129.
and its salts, estimation of, gasometrically (WEGNER), A., ii, 700.

Formic acid, normal and acid alkali salts, solubility of (GROSCHUFF), A., i, 600.
ammonium salt (REIK), A., i, 308.

Formic acid, ethyl ester, action of phenylhydrazine on (BAIDAKOWSKY and REFORMATSKY), A., i, 441.

Formylamines, analogy between nitroso-amines and (SCHMIDT), A., i, 683.

2-Formyl-methyl- and -ethyl-amino-benzoic acids (ULLMANN and UZBACHIAN), A., i, 626.

Formylmethylononetin (v. HEMMELMAYR), A., i, 508.

Fractionator, new (SILBERRAD and EASTERFIELD), P., 39.

Freezing point curves of pairs of inorganic salts (RUFF and PLATO), A., ii, 588.

Freezing point curves of binary mixtures of phenols and amines (PHILIP), T., 814; P., 143.

Freezing point depressions, by non-electrolytes in concentrated aqueous solutions (ROTH), A., ii, 467.
in electrolytic solutions (WALKER and ROBERTSON), A., ii, 412.
differential method of determining small (HAUSRATH), A., ii, 61.

Freezing points, boiling points, and solubility, relation between (WILDEEMAN), A., ii, 267.

of aqueous hydrogen peroxide, lowering of the, of aqueous hydrogen peroxide by sulphuric and acetic acids (JONES and MURRAY), A., ii, 634.
of pure nitrogen at low pressures (FISCHER and ALT), A., ii, 72.
of inorganic salts (RUFF and PLATO), A., ii, 588.
of dilute solutions (RICHARDS), A., ii, 354, 713.
of dilute solutions of mixtures (OSAKA), A., ii, 8.
See also Cryoscopy.

Freezing pressure of nitrogen (FISCHER and ALT), A., ii, 72.

Friedel and Crafts' reaction (BOESEKEN), A., i, 617.
dynamical study of the (STEELE), T., 1470; P., 209.
action of anhydrous ferric chloride in the (BOESEKEN), A., i, 626.

Frog's eye, photo-electric changes in the (GOTCH), A., ii, 497.

d-Fructose. See Lævulose.

Fruit-juices, zinc in (BENZ), A., ii, 322.

Fruits, occurrence of salicyclic acid in (TRAPHAGEN and BURKE), A., ii, 388.
containing volatile esters during the period of maturity in which they emit perfume, influence of a momentary increase in the tension of oxygen on the respiration of (GERBER), A., ii, 387.
odoriferous, at the time of complete maturity when placed, in the green and odourless state, in air enriched in oxygen, respiration of (GERBER), A., ii, 387.

Fuel, estimation of arsenic in (THORPE), T., 969, 985; P., 182.

Fumaric acid (*ethylenedicarboxylic acid*), phenyl and benzyl esters (BISCHOFF and v. HEDENSTROM), A., i, 86.

Fumaric acid (*ethylenedicarboxylic acid*), chloro-, ethyl ester, action of, on resorcinol methyl ether and on phloroglucinol diethyl ether (RUHEMANN), T., 1132; P., 201.

Fungi, formation of glycogen in, grown in solutions of sugar (LAURENT), A., ii, 746.

formation of proteids in (LOEW), A., ii, 678.

Furan (*furfuran*), dinitro- (MARQUIS), A., i, 50.

Furevernic acid (HESSE), A., i, 703.

Furylamine, acetyl derivative of (MARQUIS), A., i, 644.

Furyldihydrolutidinedicarboxylic acid, ethyl ester (RUHEMANN), T., 378; P., 50.

Fusel oil (KAILAN), A., i, 786.

G.

Gadolinite from West Australia (DAVIS), A., ii, 734.

Galactamine, and its additive salts and acyl derivatives, and carbamide and phenylcarbamide (ROUX), A., i, 73.

Galactans of the horny albumen, isolation of crystallised galactose from the products of digestion of the, by seminase (HÉRISSEY), A., ii, 232.

Galactose, isolation of crystallised, from the products of digestion of the galactans of the horny albumen by seminase (HÉRISSEY), A., ii, 232.

a product of the action of seminase on vegetable albumen (HÉRISSEY), A., ii, 170.

Galactoses, *r*- and *l*-, preparation of, and the phenylmethylhydrazone of the *l*-compound (NEUBERG and WOHLGEMUTH), A., i, 9.

Galaheptosamic acid and its copper salt (FISCHER and LEUCHS), A., i, 12.

Galangin, potassium salt and methyl ether of (PERKIN and WILSON), T., 135.

Galena, decomposition of, for analysis (BOUCHER), A., ii, 758.

Gall-bladder, introduction of foreign substances into the (CARMICHAEL), A., ii, 500.

Gall stones, formation of (HARLEY and BARRATT), A., ii, 500.

Gallacetophenone, dimethylamine derivative of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 559.

metallic salts, and methyl and ethyl ethers of (PERKIN and WILSON), T., 129.

Gallein, characteristic property of (MEYER), A., i, 562.

and its potassium salt (PERKIN and WILSON), T., 141.

Gallic acid, methyl ether, and its methyl ester (GRAEBE and MARTZ), A., i, 262; (GRAEBE; HERZIG and POL-LAK), A., i, 346.

methyl and ethyl esters, dimethylamine derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 559.

Gardenia, oil of (PARONE), A., i, 47.

Garnet-idocrase rock, enclosures of, in the serpentine of Paringu, Southern Carpathians (MUNTEANU-MURGOCI), A., ii, 29.

Garnet-sand from Lake Baikal (BAGASCHOFF), A., ii, 383.

Gas, combustible, evolved in the Caspian Sea, near the Gulf of Baku, composition of (CHARITSCHKOFF), A., ii, 155.

illuminating, estimation of benzene in (DENNIS and O'NEILL), A., ii, 514.

natural, at Heathfield, Sussex (DIXON and BONE), P., 63.

Gas analysis in flasks (WOHL), A., ii, 39, 451, 453; (WOHL and POPPENBERG), A., ii, 328.

apparatus for accurate (SODEAU), A., ii, 389.

Gas generator, an automatic (DENHAM), A., ii, 202.

Gas-purifying material, spent, estimation of Prussian blue in (SCHWARTZ; LÜHRIG), A., ii, 111.

Gas-washing flask and absorption apparatus, new form of (WETZEL), A., ii, 237.

Gases of the fumerolles of Mount Pelée in Martinique, composition of (MOISSAN), A., ii, 155; (GAUTIER), A., ii, 222.

from mineral springs (MOISSAN), A., ii, 209; (MOUREU), A., ii, 222.

apparatus for the purification of (MOISSAN), A., ii, 642.

reversed lines in the spectra of (TROWBRIDGE), A., ii, 253.

refraction of, dependent on temperature (WALKER), A., ii, 623.

luminescence of (DE HEMPTINNE), A., ii, 193.

laws governing electric discharges in, at low pressures (CARR), A., ii, 627.

ionisation of (LANGEVIN), A., i, 263.

liquefied, working with (STOCK and HOFFMANN), A., ii, 359.

movements of the flame in the explosion of (DIXON), A., ii, 273.

Gases, influence of pressure on the propagation of explosion in (DE HEMPTINNE), A., ii, 199.
 apparatus for measuring the expansion of, with temperature under constant pressure (RICHARDS and MARK), A., ii, 409.
 composition of the hydrates of (DE FORCRAND), A., i, 221; ii, 134.
Gaseous-liquid state (SCHÜKAREFF), A., ii, 710.
Gaseous mixtures, form of the practical isothermal in (CAUBET), A., ii, 353.
Gasometry by means of Victor Meyer's vapour density apparatus (MAR and SILBERBERG), A., ii, 98.
 See also Analysis.
Gastric juice of newly-born animals (COHNHEIM and SOETBEER), A., ii, 438.
 variations in the acidity of the, in hysteria (SELLIER and ABADIE), A., ii, 308.
 fat-splitting enzyme of (VOLHARD), A., ii, 494.
 action of, on fats (BÉNECH and GUYOT), A., ii, 558.
 action of, on globin and haemoglobin (SALASKIN and KOWALEWSKY), A., ii, 559.
 See also Digestion and Stomach.
Gastric mucous membrane, action of glycerol extracts of, on monobutyryl (BÉNECH and GUYOT), A., ii, 665.
Gastric secretion, action of alcohol on (WALLACE and JACKSON), A., ii, 308.
Geikielite from Ceylon (v. SUSTSCHINSKY), A., ii, 84.
Gelatin, phenomena of the setting and swelling of (v. SCHROEDER), A., ii, 721.
 action of chrome alum on (LUMIÈRE and SEYEWETZ), A., ii, 150.
 decomposition of (LEVENE), A., i, 301.
 oxidation of, with permanganates (KUTSCHER and ZICKGRAF), A., i, 666.
 digestion of (LEVENE and STOOKEY), A., ii, 308.
 tryptic fermentation of (KRUGER), A., i, 723.
 law of the action of trypsin on (HENRI and BANCELS), A., i, 591.
Gelatinisation of agar-agar and gelatin solutions (LEVITES), A., ii, 641.
Gelatoses, amounts of glycine from (LEVENE), A., i, 301.
 soluble arsenates of (KNOLL & Co.), A., i, 543.
Genista tinctoria, oil of (HAENSEL), A., i, 187.
Geraniol, *cyclogeraniol*, and nerol, physiological action of (HILDEBRANDT), A., ii, 660.
cycloGeraniol, and its acyl derivatives (HAARMANN & REIMER), A., i, 501.
cycloGeraniolane carboxylic acid, hydroxy- (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 502.
cycloGeraniolenealdehyde (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 764.
cycloGeraniolene carboxylic acid and its amide and nitrile (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 628.
Geraniums, distribution of some organic substances in (CHARABOT and LALOUE), A., ii, 568.
Getha-Adjak (GRESHOFF and SACK), A., i, 507.
Gismondite from the neighbourhood of Rome (ZAMBONINI), A., ii, 656.
Glands, lymph, autolysis of (REH), A., ii, 439.
 lymph and thymus, composition of the cells from the (BANG), A., ii, 739.
 pylorus, the ferment of the (KLUG), A., ii, 86.
 thymus, extracts of, physiological effects of (VINCENT), A., ii, 664.
 extirpation of the (VINCENT), A., ii, 664.
 nucleo-histon and -proteid from the (BANG), A., ii, 664.
 nucleohiston of the (HUISKAMP), A., i, 779.
 optical activity of the nucleic acid of the (GAMGEE and JONES), A., i, 780.
 thyroid, iodine in the (NAGEL and Roos), A., ii, 226.
Glaserite (VAN'T HOFF and BARSCHALL), A., ii, 434.
Glass, action of alkalis on (JONES), A., ii, 143.
 influence of copper in the silvering of (VIGNON), A., ii, 543.
Globin, optical activity of (GAMGEE and HILL), A., i, 451.
 action of gastric juice on (SALASKIN and KOWALEWSKY), A., ii, 559.
Globularie acid and **Globulari-citrin** from *Globularia Alypum* (TIEMANN), A., ii, 608.
Globulin, action of radium salts on (HARDY), A., i, 588.
 colloidal solution of (HARDY), A., ii, 469.
Globulins of blood-serum, carbohydrates from the (LANGSTEIN), A., i, 374, 734.

Globulins of the English walnut, the American black walnut, and the butternut (OSBORNE and HARRIS), A., i, 871, 872.

Glucinum (*beryllium*) hydroxide, solubility of, in ammonia and amines (RENZ), A., ii, 729.

Glucogallin (GILSON), A., i, 355.

Glucuheptonic acid, 2-amino-, and its salts and tetrabenzoyl derivative (NEUBERG and WOLFF), A., i, 74.

d-Glucuheptonic acid, α - and β -2-amino- (NEUBERG and WOLFF), A., i, 74, 319.

Glucophosphoric acid (LEVENE), A., i, 374.

Gluco-proteids, formation of glycogen from (STOOKEY), A., ii, 440.

Glucosamic acid, brucine salt (NEUBERG and WOLFF), A., i, 74.

d-Glucosamic acid, synthesis of (FISCHER and LEUCHS), A., i, 12, 233.

L-Glucosamic acid, synthesis of (FISCHER and LEUCHS), A., i, 12.

Glucosamine, action of, in the organism (CATHCART), A., ii, 741.

d-Glucosamine, synthesis of (FISCHER and LEUCHS), A., i, 233.

Glucose. See Dextrose.

Glucoses, α - and β -, correlation of the stereoisomeric, with the stereoisomeric α - and β -glucosides (ARMSTRONG), T., 1305; P., 209.

Glucoside from the seeds of *Dregea rubicunda* (KARSTEN), A., ii, 171.

Glucosides, stereoisomeric α - and β -, correlation of, with the corresponding glucoses (ARMSTRONG), T., 1305; P., 209.

influence of the stereochemical configuration of, on the activity of hydrolytic diastases (POTTEVIN), A., i, 378; ii, 230.

investigations of, in connection with the internal mutation of plants (WEEVERS), A., ii, 232.

vegetable, sugars of (VOTOČEK and VONDRAČEK), A., i, 570.

Glucosides. See also:—

Acocantherin.

Æsculin.

Amygdalin.

Antiarin.

Chrysophanic acid.

Corynocarpin.

Cyclamin.

Emodin.

Ericolin.

Glucogallin.

Gratioligenin.

Gratiolin.

Indican.

Glucosides. See:—

Karakin.

Methylglucosides.

Methylactoside.

Quillagie acid.

Rheoanthraglucoside.

Rheosmin.

Rheotannoglucoside.

Salicin.

Solanin.

Strophanthin.

Tetraarin.

Trimethyl α -methylglucoside.

Glucothionic acid (LEVENE), A., i, 374.

from tendon mucin (LEVENE), A., i, 779.

Glutaconic acid (*propylenedicarboxylic acid*), ethyl ester, methylation and condensation of (BLAISE), A., i, 400, 548.

Glutaconylglutaconic acid, esters (BLAISE), A., i, 400.

Glutamic acid, preparation of, from the waste liquors from molasses (ANDRLÍK), A., i, 797.

Glutaric acid (*n-pyrotartaric acid*; *propylenedicarboxylic acid*), formation of hydrogen ions from the methylene group of (EHRENFELD), A., i, 548.

Glutaric acid (*n-pyrotartaric acid*; *propanedicarboxylic acid*), phenyl and benzyl esters (BISCHOFF and v. HEDENSTRÖM), A., i, 86.

Glutaric acids, alkylated, synthesis of, from β -glycols (FRANKE and KOHN), A., i, 66.

substituted, separation of the *cis*- and *trans*-forms of (THORPE and YOUNG), T., 358; P., 248.

Glutaric anhydride, reduction of, to δ -valerolactone (FICHTER and BEISSWENGER), A., i, 459.

Gluten, moist, estimation of, in flour (ARPIN), A., ii, 119.

Glutokyrine and its salts and β -naphthalenesulpho-derivative (SIEGFRIED), A., i, 587.

Glyazinedihydrotetramethyldimalonylic acid, methyl ester, lactone of, and its semicarbazone and oxime (PERKIN), T., 1229.

Glyazinetetrahydrotetramethyldimalonylic acid, dilactone of (PERKIN), T., 1230.

Glycerides of fatty acids, synthetically prepared simple and mixed (GUTH), A., i, 225.

natural and synthetical mixed (KREIS and HAFNER), A., i, 788.

mixed, of olive oils (HOLDE), A., i, 140.

Glycerol (*glycerin*) in the blood (NICLOUX); A., ii, 438, 560, 660; (DOYON and MOREL), A., ii, 661. anhydrous, preparation of (LIEBREICH), A., i, 473. utilisation of, in the organism (LEO), A., ii, 160. action of alkalis on, and estimation of (BUISINE), A., i, 455; ii, 515. action of phosphorus trichloride on (CARRÉ), A., i, 598. estimation of, in blood (NICLOUX), A., ii, 337. estimation of, in crude glycerols (LEWKOWITSCH), A., ii, 456. estimation of, in soap-lyes (FANTO), A., ii, 515. estimation of, in urine (LEO), A., ii, 160. estimation of, in wine (TRILLAT), A., ii, 187.

Glycerol monobromophenyl ether (HANTZSCH and VOCK), A., i, 664.

s-Glycerol ditolyl ethers and the action of phosphorus trichloride on (BOYD), T., 1135; P., 202.

Glycine (*glycocine*; *aminoacetic acid*), amounts of, from gelatoses (LEVENE), A., i, 301. formation of, from leucine in the body (KOHN), A., ii, 164. and its homologues, separation of, from inorganic compounds (FARBWERKE VORM. MEISIER, LUCIUS, & BRÜNING), A., i, 607.

Glycocholic acid (WAHLGREN), A., i, 302.

Glycocholic acid, new method of preparing, from ox-bile (BLEIBTREU), A., i, 796.

Glycogen (PFLÜGER), A., ii, 499. formation of, in Fungi grown in solutions of sugar (LAURENT), A., ii, 746. occurrence of, in distillery, press, and top brewery yeasts (HENNEBERG), A., ii, 168. total, in dogs (SCHÖNDORFF), A., ii, 741. in the cartilage of Mammals (PFLÜGER), A., ii, 90. of the foetal liver (PFLÜGER), A., ii, 384. formation of, in perfused liver (GRUBE), A., ii, 440. in the skeleton (HANDEL), A., ii, 90. formation of, from gluco-proteids (STOOKEY), A., ii, 440. Hensen's method of preparing (PFLÜGER), A., i, 403. action of dilute potassium hydroxide on, at 100° (PFLÜGER), A., ii, 247.

Glycogen, behaviour of, to boiling caustic alkali (PFLÜGER), A., i, 72. analysis, history of (PFLÜGER), A., ii, 247. estimation of (PFLÜGER), A., i, 72; ii, 247, 248; (SALKOWSKI), A., ii, 516. estimation of, in livers (SALKOWSKI), A., ii, 47.

Glycol. See Ethylene glycol.

Glycol, $C_8H_{18}O_2$ (two), from $\alpha\theta$ -octamethylenediamine (LOEBL), A., i, 736.

$C_{10}H_{22}O_2$ from isovaleraldehyde, action of dilute sulphuric acid on the (MORGENSTERN), A., i, 787.

$C_{12}H_{22}O_2$, and its diacetate and methylethylacrylate, from methylethylacraldehyde (v. LENZ), A., i, 460.

$C_{13}H_{20}O_3$, and its diacetate, from *m*-ethoxybenzaldehyde and isobut-aldehyde (SUBAK), A., i, 493.

$C_{13}H_{22}O_2$ (two), and their diacetates, dibromides and carbanilides, from 9-methyl-3-isopropenylidicyclononane-5 \cdot ol-7-one (RABE and WEILINGER), A., i, 268.

$C_{14}H_{22}O_2$ and its diacetate and methylene ether, from isobutaldehyde and cuminaldehyde (SCHUBERT), A., i, 626.

from isobutaldehyde and isovaleraldehyde, action of dilute sulphuric acid on the (JELOČNIK), A., i, 787.

a-Glycols, formation of aldehydes and ketones from (KRASSUSKY), A., i, 8.

Glycolaldehyde, metabolism of (MAYER), A., ii, 495.

Glycolic and Glycolloglycolic acids, nitrates of (DUVAL), A., i, 603, 676.

Glycolic acid, menthol ester (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 501.

Glycolic acids, disubstituted, preparation of (GRIGNARD), A., i, 550.

Glycolysis of different sugars (PORTIER), A., ii, 306.

Glycosuria. See Diabetes.

Glycuronic acid, origin of (MANDEL and JACKSON), A., ii, 314. in the blood (LÉPINE and BOULUD), A., ii, 493. in icteric urine (VAN LEERSUM), A., ii, 444. excretion of (MAYER), A., ii, 501.

d-Glycuronic acid, conversion of, into *D*-xylose (SALKOWSKI and NEUBERG), A., i, 7; (KÜSTER), A., i, 402.

Glycylglycinecarboxylic acid, β -esters (FISCHER), A., i, 466.

Glyoxal, half acetal of (HARRIES), A., i, 605.
Glyoxalines (PINNER), A., i, 123.
Glyoximeperoxidizedihydrotetramethyl-dimalonylic acid, methyl ester, and its carbazole (PERKIN), T., 1230.
Glyoximeperoxidetetramethyl-dimalonylic acid, methyl ester, physical properties and reactions of (PERKIN), T., 1219.
Glyoximetetramethyl-dimalonylic acid, methyl ester (PERKIN), T., 1230.
Glyoxylic acid, compounds of, with guanidine (KAESS and GRUSZKIEWICZ), A., i, 6.
o-nitrophenylhydrazone of (BUSCH and FREY), A., i, 539.
Glyoxylic acid, methyl ester, phenyl-hydrazone of (HARRIES), A., i, 605.
Gold, colloidal solutions of, preparation of (KÜSPERT), A., ii, 76; (GUTBIER), A., ii, 81; (HENRICH), A., ii, 299; (GARBOWSKI), A., ii, 432.
 volatility of, in presence of zinc (FRIEDRICH), A., ii, 433.
 application of the phase rule to the melting point of (RICHARDS), A., ii, 266.
Gold salts, action of selenium and tellurium on (HALL and LENHER), A., ii, 154.
Gold ammonium polysulphide (HOFMANN and HÖCHTLEN), A., ii, 728.
Gold, crystalline, precipitation of, by formaldehyde (AWERKIEFF), A., ii, 218, 603.
 estimation of, in platinum alloys (NEVEU), A., ii, 514.
 estimation of, iodometrically, in dilute solution (MAXSON), A., ii, 697.
 separation of platinum and (WILLSTÄTTER), A., ii, 576.
Goose fat, composition of (WEISER and ZAITSCHEK), A., ii, 227.
Gorgonin and **Iodogorgonic acid** (HENZE), A., i, 668.
Gout and flesh feeding (KOCHMANN), A., ii, 317.
Granites of Georgia (WATSON), A., ii, 84.
Grape juice, copper in (OMEIS), A., ii, 322.
Grapes, red, colouring matter of the (SOSTEGNI), A., i, 48.
 occurrence of salicylic acid in (MASTBAUM), A., ii, 703.
Graphite, temperature of inflammation of, and the combustion of, in oxygen (MOISSAN), A., ii, 141.
Gratiolin, **Gratioligenin**, **Gratiogenin**, and **Gratiolon** and its sodium derivative, from *Gratiola officinalis* (RETZLAFF), A., i, 107.
Gravitation energy, absorption of, by radioactive matter (GEIGEL), A., ii, 258.
Guaiacol, reactions of (GUÉRIN), A., ii, 338.
Guaiacol acetate, nitration of (REVERDIN and CRÉPIEUX), A., i, 624.
Guanidine, formation of, by the oxidation of gelatin with permanganates (KUTSCHER and ZICKGRAF), A., i, 666.
 compounds of, with glyoxylic acid and with mesoxalic acid (KAESS and GRUSZKIEWICZ), A., i, 6.
Guanidine, amino-, condensation of, with methyl heptyl and methyl nonyl ketones (THOMS and MANNICH), A., i, 673.
Guanidines, aromatic (ALWAY and VIELE), A., i, 201.
o-Guanidinebenzoic acid (WHEELER and MERRIAM), A., i, 525.
Guano, Damara and Peruvian, manurial experiments with (SCHREIBER), A., ii, 177.
Guanylie acid, preparation of (BANG and RAASCHOU), A., i, 780.
Gun-cotton, ignition of, by means of water (VANINO), A., i, 232.
Gurjoresen, **Gurjuresinol** and its acetate and benzoate, **Gurjuturboresinol**, and **Gurjoresinolic acid** (TSCHIRCH and WEIL), A., i, 771.
Gutta-percha, chemical behaviour of (RAMSAY, CHICK, and COLLINGRIDGE), A., i, 190.
 assay of (MARCKWALD and FRANK), A., ii, 110.
 digester-lixiviator for testing (PONTIO), A., ii, 187.
Gypsum, hydraulic or Estrich (VAN'T HOFF and JUST), A., ii, 368; (ROHLAND), A., ii, 545.
 "setting" of (CLOËZ), A., ii, 292.
 solubility of, in presence of metallic chlorides (ORLOFF), A., ii, 211.
 dehydration of (CLOËZ), A., ii, 292.
 See also Calcium sulphate.

H.

Hackmanite from Finland (BORGSTRÖM), A., ii, 304.
Hemase (SENTER), A., ii, 662.
Hematoxylin and **brazilin** (HERZIG and POLLAK), A., i, 270, 713.
 transformation products of (v. KOSTANECKI and ROST), A., i, 646.
Hæmerythrin and **Hæmocyanin** (KOBERT), A., ii, 741.

Hæmochromatosis in diabetes (BEATTIE), A., ii, 675.

Hæmoglobin (SIEBER-SCHUMOFF), A., i, 375.
chlorophyll, and lipochrome (MARCHLEWSKI), A., i, 667.
crystallisation of (REICHERT), A., i, 543.
action of chloroform on (KRÜGER), A., i, 216.
action of gastric juice on (SALASKIN and KOWALEWSKY), A., ii, 559.

Hæmoglobins, optical activity of (GAMGEE and HILL), A., i, 451.

Oxyhæmoglobin, hydrolysis of, by the aid of hydrochloric acid (FISCHER and ABDERHALDEN), A., i, 136.
crystallised, from horses' blood, hydrolysis of (ABDERHALDEN), A., i, 587.

Hæmolsins, new method of producing (RUFFER and CRENDIPOULOS), A., ii, 227.

Hæmolysis in the spleen (NOËL PATON and GOODALL), A., ii, 498.
by the action of staphylococcal (SCHUR), A., ii, 92.

Hæmolytic agents, influence of cold on the action of some (STEWART), A., ii, 443.

Hæmatite from Pragraten, Tyrol (v. SUSTSCHINSKY), A., ii, 84.

Hæmorrhage, blood changes after (BAUMANN), A., ii, 306.

Hair, the pigment of (SPIEGLER), A., i, 589.

Hall effect (MOREAU), A., ii, 196.

Halogen, interchange of hydroxyl and, in benzenediazonium hydroxides (ORTON), T., 796; P., 161; A., i, 297.

Halogen compounds, density of, in relation to chemical constitution and composition (KANONNIKOFF), A., ii, 11.
organic, hydrolysis of, by insoluble oxides in presence of water (SWARTS), A., i, 725.

Halogen double salts, regularities in the composition of (EPHRAIM), A., ii, 418, 487, 538, 552, 596; (GROSSMANN), A., ii, 476, 596.

Halogens, theory of the action of, on alkalis (FOERSTER and MÜLLER), A., ii, 142, 350; (WINTERLEDER), A., ii, 291.
action of, on compounds containing the carbonyl group (LAPWORTH), P., 188.
estimation of, in organic compounds (BAUBIGNY and CHAVANNE), A., ii, 510.

Halogens, quantitative separation of sulphides and (BILTZ), A., ii, 451.

"**Hartsalz**," temperature of formation of (VAN'T HOFF and MEYERHOFER), A., ii, 144.

Heart, action of calcium on the (LANGENDORFF and HUECK), A., ii, 498.
action of chloroform on the (SCHAFFER and SCHARLIEB), A., ii, 437.
mammalian, action of camphor on the (WINTERBERG), A., ii, 307.
excised mammalian, action of chloroform, ether, alcohol, and acetone on the (TUNNICLIFFE and ROSENHEIM), A., ii, 437.

Heart action of Molgulæ (HUNTER), A., ii, 663.

Heart activity, importance of sodium chloride in (LINGLE), A., ii, 30.

Heat. See Thermochemistry.

Helium, production of, from radium (RAMSAY and SODDY), A., ii, 622.
effect of mercury vapour on the spectrum of (COLLIE), A., ii, 49.
thermal conductivity of (SCHWARZE), A., ii, 465.
pressure coefficient of, at constant volume, and at different initial pressures (TRAVERS, SENTER, and JAQUEROD), A., ii, 9.

Hellandite from Norway (BRÖGGER), A., ii, 657.

Helmitol (EICHENGRÜN), A., i, 195.

Hemicelluloses (SCHULZE and CASTORO), A., i, 152, 793.

Hemi-indigotin (MAILLARD), A., ii, 563, 761.

Hemipinic acid, acid esters, action of hydrazine hydrate and thionyl chloride on (WEGSCHEIDER and v. RUŠNOV), A., i, 702.

Hens, formation and composition of fat in (ZAITSCHEK), A., ii, 740.

Heptaldehyde, action of formaldehyde on (VAN MARLE and TOLLENS), A., i, 460.
compounds of, with aniline sulphite (SPERONI), A., i, 246.

Heptanaphthalenes. See Methylcyclohexenes.

*cyclo***Heptane**. See Suberane.

n-**Heptanesulphonic acid** (BOGERT), A., i, 404.

Heptenoic acid, methyl ester, and its rotation (RUPE and ŽELTNER), A., i, 566.

$\alpha\beta$ -**Heptenoic acid** and its salts (RUPE, RONUS, and LOTZ), A., i, 139.

Heptenoic acid. See also α -Methyldihydrosorbic acid.

Heptinoic acid (*trimethyltetrolic acid, $\gamma\gamma$ -dimethyl- α -pentinoic acid*), and its esters (MOUREU and DELANGE), A., i, 313.

α -Heptinoic acid (*butylpropioic acid*) and its esters (MOUREU and DELANGE), A., i, 313.

Heptinoic acid. See also α -Methylsorbic acid.

Heptoic acid, γ -hydroxy-, barium salt (RUPE, RONUS, and LOTZ), A., ii, 140.

Heptoic acid (*α -isopropylbutyric acid, β -hydroxy-* (WOGRINZ), A., i, 604.

Heptoic acid (*$\gamma\gamma\gamma$ -trimethylbutyric acid, $\gamma\gamma$ -dimethylvaleric acid*), and its amide (MOUREU and DELANGE), A., i, 314, 676.

γ -Heptolactone (RUPE, RONUS, and LOTZ), A., i, 140.

Heptoyletic acid and its esters and their copper salts (MOUREU and DELANGE), A., i, 399.

Heptyl alcohol, condensation of, with ethyl alcohol, and with propyl alcohol (GUERBET), A., i, 61.

*iso***Heptyl alcohol** and its acetate (GRIGNARD), A., i, 552.

*n***-Heptyl thiocyanate** (BOGERT), A., i, 404.

Heptylcyanooacetamide (GUARESCHI), A., i, 737.

Heptylene glycols. See β -Dimethylpentane- $\alpha\epsilon$ -diol, and γ -Methylhexane- $\alpha\zeta$ -diol.

Heptylpropioic acid. See α -Decinoic acid.

Hesperitin, formula of (PERKIN and PHIPPS), P., 284.

Heterocyclic compounds, formation of, from hydrazine derivatives (STOLLÉ), A., i, 721.

Hexadecyl alcohol (*triisoamylcarbinol*) (GRIGNARD), A., i, 455.

cycloHexadienes. See Dihydrobenzenes.

β -Hexahydrobenzoylphenylhydrazine (RUPE and METZ), A., i, 536.

Hexahydrobenzyl alcohol and its urethane (BOUVEAULT and BLANC), A., i, 673.

Hexahdropyromellitic acid. See Hexamethylenetetracarboxylic acid.

Hexamethylaminobenzophenone and its salts (ZOHLEN), A., i, 118.

Hexamethylammonio-cadmium chloride (LANG), T., 724; P., 125.

Hexamethylene glycol. See Hexane- $\alpha\zeta$ -diol.

Hexamethyleneimine and its methiodide and additive salts (WALLACH), A., i, 104.

Hexamethyleneoctacarboxylic acid and its ethyl ester and salts (GREGORY and PERKIN), T., 783; P., 164.

Hexamethylenetetramine, constitution of (DESCUDÉ), A., i, 72.

bases from (HOCK), A., i, 465.

cis-**Hexamethylenetetracarboxy-dianilic acid** and -dianil (GREGORY and PERKIN), T., 787.

Hexamethylenetetracarboxylic acid (*hexahdropyromellitic acid*), *cis*-, and *trans*-, and their anhydrides (GREGORY and PERKIN), T., 784; P., 164.

Hexamethyltrimethylenediammonium periodides (STRÖMHLAND), A., i, 462.

*n***-Hexane**, products of the slow combustion of (V. STEPSKI), A., i, 61.

and *n*-octane, vapour pressures and boiling points of mixtures of (YOUNG and FORTEY), T., 56.

Hexane (*β -methylpentane*), $\alpha\epsilon$ -diamino-, and its salts and dibenzoyl derivative (FRANKE and KOHN), A., i, 153.

Hexane, dicyano- (HAMONET), A., i, 306.

cycloHexane, and its chloro-derivatives (SABATIER and MAILHE), A., i, 686.

o-chloroiodo- (BRUNEL), A., i, 157.

cycloHexanecarboxylic acid, methyl ester, and its rotation (RUPE and LOTZ), A., i, 566.

Hexanedicarboxylic acids. See :—

$\alpha\beta$ -Diethylsuccinic acid.

*iso*Propylglutaric acid.

$\alpha\alpha\gamma$ -Trimethylglutaric acid.

Hexane- $\alpha\zeta$ -diol (BOUVEAULT and BLANC), A., i, 731.

and its diacetate, dibenzoate, and dicarbanil derivative (HAMONET), A., i, 251, 306.

β -*o*-cycloHexanediol and its ethers, acetate, and benzoate (BRUNEL), A., i, 338.

*eso*Anhydride and its derivatives (BRUNEL), A., i, 338, 695.

action of ammonia on (BRUNEL), A., i, 680.

Hexane- $\alpha\gamma\delta\zeta$ -tetrone- $\alpha\zeta$ -dicarboxylic acid, ethyl ester (DIELS), A., i, 400.

Hexanetricarboxylic acid. See Dimethylbutanetricarboxylic acid.

cycloHexanol, α -amino-, and its salts (BRUNEL), A., i, 680.

iodo-, and its methyl and ethyl ethers (BRUNEL), A., i, 157.

β -cycloHexan-1-ol-2-sulphonic acid, sodium salt (BRUNEL), A., i, 695.

Hexaphenylethane (GOMBERG), A., i, 244.

formation of (SCHMIDLIN), A., i, 687.

Hexaphenylethane, formation of, from triphenylmethyl (GOMBERG), A., i, 81.

Hexenoic acid (*dimethylvinylacetic acid*), and its anilide and lactone (BLAISE), A., i, 604.

Hexenoic acids, methyl esters, and their rotation (RUPE and ZELTNER), A., i, 566.

Hexenoic acid. See also Hydrosorbie acid.

cycloHexenone, action of ammonia on (KNOEVENAGEL and ERLER), A., i, 636.

Hexinoic acid (γ -*methyl-a-pentinoic acid*, *isopropylpropionic acid*), and its esters (MOUREU and DELANGE), A., i, 312.

a-Hexinoic acid (*propylpropionic acid*), and its esters (MOUREU and DELANGE), A., i, 312.

Hexinoic acid. See also Sorbic acid.

Hexoic acid (α -*dimethylbutyric acid*), *B*-hydroxy- (WOGRINZ), A., i, 604.

Hexoic acid (β -*ethylbutyric acid*), hydroxy-, and its salts (FICHTER and BEISSWENGER), A., i, 459.

Hexoic acid, *L*-amino-, copper salt (NEUBERG and WOLFF), A., i, 74.

i- α -*diamino*- (SÖRENSEN), A., i, 834.

tetrahydroxyamino-, in cartilage (ORGLER and NEUBERG), A., i, 589.

Hexone bases, analyses of (KOSSEL and PATTEN), A., ii, 582.

Hexoylacetic acid, ethyl ester (MOUREU and DELANGE), A., i, 399.

methyl ester (BOUVEAULT and BONGERT), A., i, 143.

Hexoylacetone and its copper derivative (BOUVEAULT and BONGERT), A., i, 142.

*iso***Hexoylglycylglycine**, *a*-bromo-, and its ester (FISCHER), A., i, 799.

*S-iso***Hexylamine**, hydroxy-, and its phenylthiocarbamide (KOHN and LINDAUER), A., i, 73.

cycloHexylamine, dihydroxy-, and its isomeride, and their hydrochlorides and nitrosoamines (BRUNEL), A., i, 680.

Hexylene ($\beta\gamma$ -*dimethyl-β-butylene*, *tetramethylethylene*), action of nitrogen dioxide on (SCHMIDT), A., i, 597.

δ-Hexylene dibromide, action of water on (FROEBE and HOCHSTETTER), A., i, 320.

Hexylene glycols. See β -Dimethylbutane- $\alpha\delta$ -diol, and Hexane- $\alpha\delta$ -diol.

Hexylenedicarboxylic acid. See *αγ*-Trimethylglutaconic acid.

Hexylpropionic acids, *n*- and *iso*-. See Noninoic acids.

Hexylpyrazolone (MOUREU and DELANGE), A., i, 400.

Hippuric acid excretion, influence of quinic acid on (HUPFER), A., ii, 442.

Hippuric acid, *o*- and *m*-bromo- and *o*- and *p*-chloro- (HILDEBRANDT), A., ii, 228.

p-bromo- and *m*-nitro- (KLAGES and HAACK), A., i, 560.

Hippuronitrile, and *p*-bromo- and *m*- and *p*-nitro- (KLAGES and HAACK), A., i, 560.

Hirtic and Hirtellic acids (ZOPF), A., i, 762.

Histidine (HERZOG), A., i, 431.

preparation and constitution of (FRÄNKEL), A., i, 650; (KOSSEL; WEIGERT), A., i, 784.

separation of (KOSSEL and PATTEN), A., ii, 582.

picrolonate (STEUDEL), A., i, 431.

Histine (FRÄNKEL), A., i, 651.

Histine, hydroxy-, and its carboxylic acid (FRÄNKEL), A., i, 651.

Hernesite, artificial production of (DE SCHULTEN), A., ii, 655.

Hofmann reaction, new reagent for inducing the (TSCHERNIAC), A., i, 262.

Holothurians, the wine-red bodies in (MÖRNER), A., ii, 165.

α-Homodypnopinacolin (GESCHÉ), A., i, 484.

Homogeneous mixtures, solubility of (THIEL), A., ii, 531.

Homogentistic acid, production of, from phenylalanine (FALTA and LANGSTEIN), A., ii, 496.

synthesis of (OSBORNE), A., i, 487.

Homomaticoic acid and its barium salt (FROMM and VAN EMSTER), A., i, 188.

Homonataloin and its benzoyl derivatives (LÉGER), A., i, 356.

Homosalicylaldehydes, *o*-, *m*-, and *p*-, semicarbazones of (ANSELMINO), A., i, 122.

o-Homosalicylaldehydeazine (ANSELMINO), A., i, 122.

p-Homosalicylaldehydophenylhydrzone, acyl derivatives of (ANSELMINO), A., i, 122.

Homosalicylaldehyde-phenylhydrzones, *o*-, *m*-, and *p*-, and *p*-bromo-phenylhydrzones, *o*- and *p*- (ANSELMINO), A., i, 121.

Homoveratrole, *6-nitro*- (HERZIG and POLLAK), A., i, 713.

Honey, influence of feeding with sucrose and starch syrup on the composition of (v. RAUMER), A., ii, 32.

Hoplocephalus curtus, changes in nerve-cells after poisoning with the venom of (KILVINGTON), A., ii, 92.

Hops, approximate estimation of the bitter principle and aroma of (REMY), A., ii, 251.
essential oil of (CHAPMAN), T., 505; P., 72.

Horn, hydrolysis of (FISCHER and DÖRPINGHAUS), A., i, 216.

Horse chestnuts, esculin and tannin in (GORIS), A., ii, 507.

Horses, inorganic metabolism in (TANGL), A., ii, 161.
molasses food for (GRANDEAU), A., ii, 569.

peat molasses as food for (GRANDEAU and ALEKAN), A., ii, 96.

Humulene from hops (CHAPMAN), T., 505; P., 72.

Hudsonite, an amphibole, not a pyroxene (WEIDMAN), A., ii, 436.

Huelvite from the Aure Valley in the Pyrenees (LIENAU), A., ii, 223.

Hydantoic acid, thio-, ethyl ester (HARRIES and WEISS), A., i, 738.

Hydantoin and its β -acetyl and dichloro-derivatives (HARRIES and WEISS), A., i, 738.

Hydantoins, ψ -thio-, molecular rearrangement of thiocyanacetanilides into labile, and formation of stable (JOHNSON), A., i, 580.

Hydrargyrum praecipitatum alb., titration of (RUPP), A., ii, 759.

Hydrastine, action of high temperatures on, when fused with carbamide (BECKURTS and FRERICHS), A., i, 717.

Hydrastinine, test for (JORISSEN), A., ii, 518.

Hydrates, formation of, deduced from partition coefficients (VAUBEL), A., ii, 471.

Hydrazidines (VOSWINCKEL), A., i, 777.

Hydrazine, conductive power of, and of substances dissolved therein (COHEN and DE BRUYN), A., ii, 405.
diazotisation of (BETTI), A., i, 78.
action of phosphorus on (DITO), A., ii, 592.

iodometry of (RUPP), A., ii, 329.
estimation of, volumetrically (STOLLÉ), A., ii, 100; (RUPP), A., ii, 329.

Hydrazine hydrate, action of, on ethylene bromide (STOLLÉ), A., i, 305.

action of, on thioamides (JUNGHAHN and BUNIMOWICZ), A., i, 130.

Hydrazinecarboxylic acid, ethyl ester (DIELS), A., i, 325.

Hydrazinodimethylnicotinic anhydride and its platinichloride (MICHAELIS and v. AREND), A., i, 292.

Hydrazinomethylutidonecarboxylic anhydride and its additive salts (MICHAELIS and v. AREND), A., i, 293.

6-Hydrazinonicotinic acid and its sulphate and aldehydohydrazone (MARCKWALD and RUDZIK), A., i, 514.

Hydrazobenzene, benzoyl derivatives of (FREUNDLER), A., i, 663.

Hydrazobenzene, 4:4'-dinitro-, and its diacetyl derivative (FREUNDLER and BÉRANGER), A., i, 202.

p-Hydrazobenzoic acid, ethyl ester, preparation of (MEYER and DAHLEM), A., i, 448.

Hydrazo-compounds, benzoylation of (BIEHRINGER and BUSCH), A., i, 296.

simultaneous oxidation and reduction of (BIEHRINGER and BUSCH), A., i, 296.

Hydrazoic acid. See Azoimide.

m-Hydrazophenol (ELBS and KIRSCH), A., i, 539.

Hydrides. See under the separate Metals and Metalloids.

Hydrindamine bromocamphorsulphonate, α -modification, resolution of (KIPPING), T., 873.

cis- π -camphanates, *d*- and *l*- (KIPPING), P., 286.

d-chlorocamphorsulphonates, NR_2H_3 , the four isomeric (KIPPING), T., 902; P., 164, 166.

dl-**Hydrindamine** *d*-bromocamphorsulphonate, β -modification, resolution of (KIPPING), T., 889.

d-bromocamphorsulphonates, isomeric (KIPPING), T., 873, 889, 937; P., 167.

d-chlorocamphorsulphonates, isomeric (KIPPING), T., 902, 937; P., 164, 166.

Hydriodic acid. See under Iodine.

Hydrobenzoin, diamino-, dimethyl ether, and its hydrochloride (ZINCKE and FRIES), A., i, 180.

tetrabromodi-p-hydroxy-, dimethyl ethers and acetates of (ZINCKE and FRIES), A., i, 179.

tetrachlorodi-p-hydroxy-, and its ethers and acetates (ZINCKE and FRIES), A., i, 181.

iso-**Hydrobenzoin**, *tetrabromodi-p-hydroxy-*, and its acetates (ZINCKE and FRIES), A., i, 179.

tetrachlorodi-p-hydroxy-, and its ethers and acetates (ZINCKE and FRIES), A., i, 181.

Hydrocarbon, C_4H_6 . from divinyl tetrabromide (IPATIEFF), A., i, 453.

Hydrocarbon, $C_{10}H_{18}$, from pinene hydrochloride, magnesium, and carbon dioxide (ZELINSKY), A., i, 185.

$C_{15}H_{14}$, and its dibromide, from $C_{17}H_{14}O_2$ (VORLÄNDER and SCHROEDTER), A., i, 496.

$C_{16}H_{18}$, from camphor (CHABRIÉ), A., i, 245.

$C_{18}H_{16}$, from ω -dichloro *p*-methyl-ethylbenzene (AUWERS and KEIL), A., i, 621.

$C_{18}H_{38}$, from lichesteric acid (BÖHME), A., i, 317.

Hydrocarbons, new synthesis of (WERNER and ZILKENS), A., i, 615; (HOUBEN), A., i, 805.

mechanism of Friedlander's reaction for the formation of, from diazoxides (EIBNER), A., i, 447.

formation of, from the action of metals at high temperature on fatty acids (HÉBERT), A., i, 396.

with heterocyclic chains, refractive powers of (PELLINI and LOI), A., ii, 121.

solid, method of determining the index of refraction of, with the Pulfrich refractometer (MABERY and SHEPHERD), A., ii, 345.

heat of combustion of (LEMOULT), A., ii, 410.

aromatic, new method of chlorinating (SEYEWETZ and BIOT), A., i, 157; (SEYEWETZ and TRAWITZ), A., i, 330.

benzenoid, syntheses of, by reduction of groupings containing oxygen (KLAGES), A., i, 553.

formation of, by the reduction of the vinyl group (KLAGES and KEIL), A., i, 553.

synthesis of aldoximes and aromatic nitriles from, by means of mercury fulminate and aluminium chloride (SCHOLL; SCHOLL and KAËR), A., i, 254.

coal tar, auto-oxidation of some (WEGER), A., i, 239.

of the cyclohexadiene series (HARRIES and ANTONI), A., i, 613; (CROSSLEY and LE SUEUR), A., i, 804.

presence of, in the gases of the fumerolles of Mount Pelée in Martinique (MOISSAN), A., ii, 155.

of Galician petroleum, nitration of (ZALOZIECKI), A., i, 616.

from Roumanian petroleum (PONI), A., i, 593.

Hydrocarbons, mono-bromo- and -chloro-derivatives, transformation of, into monoiodo-derivatives (BODROUX), A., i, 221.

Hydrocarbons, *dinitro*-, constitution of the primary (PONZIO), A., i, 161, 305, 786; (SCHOLL), A., i, 331. See also Olefines and Terpenes.

Hydrochloric acid. See under Chlorine.

β -Hydrocinnamoylphenylhydrazine (RUPE and METZ), A., i, 536.

Hydrocollidinedicarboxylic acid, ethyl ester (RUHEMANN), T., 378; P., 50.

Hydrocyanic acid. See under Cyanogen.

Hydrocyanocarbodi-*o*- and *p*-tolyl-imides (SANDMEYER and CONZETTI), A., i, 486.

Hydrocyanocarbophenyl-*o*- and *p*-tolyl-imides (SANDMEYER and CONZETTI), A., i, 487.

Hydrodiferrocyanic acid (CHRÉTIEN), A., i, 685.

Hydroferrocyanic acid, heat of neutralisation of, and heat of formation of its compounds with ether and with acetone (CHRÉTIEN and GUINCHANT), A., ii, 589.

compounds of, with organic substances (CHRÉTIEN and GUINCHANT), A., i, 612.

Hydrofluoric acid. See under Fluorine.

Hydrogen, atmospheric (LEDUC), A., ii, 68, 202, 480; (GAUTIER), A., ii, 138, 202.

combined, in reduced copper (LEDUC), A., ii, 68, 202, 480; (GAUTIER), A., ii, 138, 202.

preparation of pure (VÈZES and LABATUT), A., ii, 68.

spectra of (TROWBRIDGE), A., ii, 253.

heat of combustion of (MIXTER), A., ii, 711.

pressure coefficient of, at constant volume and at different initial pressures (TRAVERS, SENTER, and JAQUEROD), A., ii, 9.

apparatus for the liquefaction of (OLSZEWSKI), A., ii, 203, 642.

liquid, vapour pressures of, at temperatures below its boiling point on the constant volume hydrogen and helium scales (TRAVERS, SENTER, and JAQUEROD), A., ii, 9.

combination of, with solid fluorine at $-252^{\circ}5$ (MOISSAN and DEWAR), A., ii, 360.

action of, on arsenic sulphides in presence of antimony, and on antimony trisulphide in presence of arsenic (PÉLABON), A., ii, 422.

action of, on silver sulphide in presence of antimony trisulphide and of arsenic trisulphide (PÉLABON), A., ii, 290.

Hydrogen, reduction of metallic oxides by (FAY and SEEKER), A., ii, 597.
Hydrogen chloride. See under Chlorine.
 cyanide. See under Cyanogen.
 fluoride. See under Fluorine.
 nitride. See Azoimide.
Hydrogen peroxide (BORNEMANN), A., ii, 281.
 of crystallisation (WILLSTÄTTER), A., ii, 537.
 aqueous, lowering of the freezing point of (JONES and CARROLL), A., ii, 131.
 aqueous, lowering of the freezing point of, by sulphuric and acetic acids (JONES and MURRAY), A., ii, 634.
 catalytic decomposition of (LOEVENHART and KÄSTLE), A., ii, 415; (BÖCK), A., ii, 416; (KÄSTLE and LOEVENHART), A., ii, 537.
 decomposition of, by haemase (SENTER), A., ii, 662.
 catalysis of, by iodine ions (BREDIG and WALTON), A., ii, 282.
 decomposition of, by electrolytic oxygen or hydrogen (TANATAR), A., ii, 202.
 reactions of (MCCLACHLAN), P., 216.
 action of, on carbohydrates in presence of ferrous sulphate (MORRELL and CROFTS), T., 1284; P., 208.
 action of, on acid carbonates (KASAN-EZKY), A., ii, 366.
 action of, on carbon monoxide (JONES), A., ii, 594.
 interaction of, with ozone (INGLIS), T., 1013; P., 197.
 action of, on sodium thiosulphate (WILLSTÄTTER), A., ii, 543.
 action of, on blood (VILLE and MOITESSIER), A., ii, 120, 737.
 use of, in volumetric analysis (SCHLOSSBERG), A., ii, 184.
 detection of, in milk (ARNOLD and MENTZEL), A., ii, 449, 580
Hydrogen peroxide—chromic acid reaction, influence of alkali molybdates and tungstates on the (REICHARD), A., ii, 245.
Hydrogen tetroxide, existence of (CLOVER), A., ii, 417.
 and ozonic acid (BACH), A., ii, 17.
 phosphides (SCHENCK), A., ii, 363.
Hydrogen sulphide, presence of, in boiled milk (UTZ), A., ii, 561.
 preparation of, in the dry way (PROTHIÈRE), A., ii, 284.
 generator for, and distributor of, to laboratory classes (PARSONS), A., ii, 359.

Hydrogen sulphide, production of, from the extract of organs and of yeast, and from proteid matter in general, and the influence of temperature on it (ABELOUS and RIBAUT), A., ii, 605.
 influence of salts on the solubility in water of (MC LAUCHLAN), A., ii, 716.
 composition and constitution of the hydrates of (DE FORCRAND), A., i, 221; ii, 134.
 purification of, to be used in the detection of arsenic (GAUTIER), A., ii, 694.
 detection of (GANASSINI), A., ii, 40.
Hydrogen ions, formation of, from the methylene groups of glutaric, malonic, and succinic acids (EHRENFEILD), A., i, 548.
Hydrolysis. See Affinity.
Hydroscopolidine (SCHMIDT), A., i, 51.
Hydrosorbic acid (*hexenoic acid*), β -hydroxy-, and its ethyl ester, synthesis of (JAWORSKY and REFORMATSKY), A., i, 4; (JAWORSKY), A., i, 728.
Hydroxamsantolic anhydride (FRANCESCONI and FERRULLI), A., i, 829.
Hydroxy-acid, $C_{10}H_{18}O_3$, from the reduction of camphorquinone (MANASSE and SAMUEL), A., i, 45.
 $C_{10}H_{18}O_3$, and its urethane, from the base, $C_{10}H_{18}O_2$ (SEMMLER), A., i, 353.
Hydroxy-acids, condensation of, with benzaldehyde (MAYRHOFER and NEMETH), A., i, 344.
 action of carbonyl chloride and pyridine on (EINHORN and METTLER), A., i, 29, 30.
 methylene compounds of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 149.
 nitrates of (DUVAL), A., i, 603, 676.
 α -**Hydroxy-acids**, action of ammonia on a mixture of two (ERLENMEYER), A., i, 677.
Hydroxyaldehydes, phenylhydrazones of (ANSELMINO), A., i, 121.
 micro-chemical analysis of (BEHRENS), A., ii, 246.
Hydroxyamidines (LEY and HOLZWEISSIG), A., i, 282.
Hydroxyamino-acid, new (NEUBERG and WOLFF), A., i, 12.
Hydroxy-derivatives. See under the parent Substance.
Hydroxyl, interchange of halogen and, in benzenediazonium hydroxides (ORTON), T., 796; P., 161; A., i, 297.
 direct migration of the, from the α - to γ -positions (ERLENMEYER), A., i, 419.

Hydroxyl, magnesium organic compounds as a test for (TSCHUGAEFF), A., i, 79.
Hydroxyl ions, influence of, on tryptic digestion (KANITZ and DIETZE), A., ii, 160.
 radicles, estimation of (HIBBERT and SUDBROUGH), P., 285.
Hydroxylamine, electrolytic preparation of (BOEHRINGER & SOHNE), A., ii, 287.
 estimation of (JONES and CARPENTER), T., 1394 ; P., 228.
 estimation of, volumetrically (SIMON), A., ii, 239.
 estimation of, in oximes (GRIMALDI), A., ii, 342.
Hydroxylaminetrisulphonates (*metasulphazilates*) (HAGA), P., 281.
Hydroxylamino-derivatives. See under the parent Substance.
Hygric acid, synthesis of, and its ester and methylamide, and their salts (WILLSTÄTTER and ETTLINGER), A., i, 362.
Hyoscyamines, *d*- and *L*-, formation of, from atropine (AMENOMIYA), A., i, 109.
Hyper-acids, condition in solution of salts of (PISSARJEWSKY), A., ii, 375.
Hypertonic salt solutions, diuretic action of (SOLLMANN), A., ii, 562.
Hypochlorous acid. See under Chlorine.
Hypoiodous acid. See under Iodine.
Hyponitrous acid. See under Nitrogen.
Hypophosphorous acid. See under Phosphorus.
Hyposulphurous acid. See under Sulphur.
Hystazarin, dibromo- and 1-mono- and 1:4-di-nitro-derivatives (SCHROBSDORFF), A., i, 841.
Hysteria, variations in the acidity of the gastric juice in (SELLIER and ABADIE), A., ii, 308.

I.

Iceland moss, acids from (SIMON), A., i, 98.
 lichesteric acid from (BÓHME), A., i, 316.
Ichthylepidin (MÖRNER), A., ii, 165.
Idryl (*fluoranthrone*) (GOLDSCHMIEDT), A., i, 161.
Ilmenite from Piágraten, Tyrol (v. SUSTSCHINSKY), A., ii, 84.
Image, Egyptian, corrosion of an (BASSETT), P., 194.
Imides, acid, hydrolysis of, by ferments (GONNERMANN), A., i, 590.

Imino-acid anhydrides, molecular rearrangement of (WHEELER and JOHNSON), A., i, 692.
Imino-compounds, action of mixed organo-magnesium compounds on (MEUNIER), A., i, 544.
Iminodicarboxylic acid, ethyl ester, and dihydrazide (DIELS), A., i, 324.
Imino-ethers, formation of (LANDER and JEWSON), T., 766 ; P., 160.
 synthesis of (LANDER), T., 320 ; P., 15.
 N-substituted, molecular rearrangement of (LANDER), T., 406 ; P., 45.
Iminodithiocarbonic esters (DELÉPINE), A., i, 156, 237.
Inanition, metabolism in, in insects (SLOWTZOFF), A., ii, 495.
 indole formation and indican excretion in rabbits during (ELLINGER), A., ii, 670.
Indandione (*diketohydrindene*), synthetic preparations by means of (ERRERA), A., i, 265.
 derivatives of (ERRERA), A., i, 854.
Indanthrene (KAUFLER), A., i, 446, 582 ; (BOHN), A., i, 530.
Indazyl-*o*-benzoic acid (FREUNDLER), A., i, 372.
Indene, impurities of technical (WEGER and BILLMANN), A., i, 332.
Indiarubber. See Caoutchouc.
Indican, origin of, in the organism (SCHOLZ), A., ii, 563.
 excretion of, in rabbits during inanition (ELLINGER), A., ii, 670.
 urinary (PORCHER and HERVIEUX), A., ii, 672.
 estimation of, in urine (ELLINGER), A., ii, 620.
Indicanuria (HILDEBRANDT), A., ii, 673.
Indicator, cyanogen iodide as, for acids (KASTLE and CLARKE), A., ii, 683.
p-nitrophenol as (GOLDBERG and NAUMANN), A., ii, 684.
 phenolphthalein as (SCHMATOLLA), A., i, 95.
Indicators, report of the Committee on (LUNGE), A., ii, 389.
 coloured, theory of (VAILLANT), A., ii, 473.
 for the titration of Cinchona alkaloids (MESSNER), A., ii, 519.
 suitability of various, for the estimation of alkali in presence of nitrite and formate (WEGNER), A., ii, 453.
 See also Analysis.
Indigotin, synthesis of (CAMPUS), A., i, 33 ; (BAMBERGER and ELGER), A., i, 560.

Indigotin, synthesis of, from thiocarbanilide (SANDMEYER), A., i, 486.
 preparation of, from α -thioisatin (GEIGY & Co.), A., i, 33.
 constitution of (MAILLARD), A., i, 761.
 absorption spectra of (EDER), A., i, 344.
 colloidal (MÖHLAU and ZIMMERMANN), A., i, 419.
 benzylation of (HELLER), A., i, 827.
 reduction of, with zinc dust and ammonia (KUFFERATH), A., i, 33.
 combination of, with formaldehyde (HELLER and MICHEL), A., i, 834.
 salts (BINZ and KUFFERATH), A., i, 173.
 micro-chemical analysis of (BEHRENS), A., ii, 246.

Indigotin, diamino-, and its diacetyl derivative (FRIEGLÄNDER and FRITSCH), A., i, 347.
 absorption spectra of (EDER), A., i, 344.
 bromo-derivatives (BADISCHE ANILIN- & SODA-FABRIK), A., i, 345.
 tetrahydroxy-, attempts to prepare (HAYDUCK), A., i, 826.
 $dinitro\text{-}[NO_2\text{:CO:NH}=4:1:2]$ (FRIEGLÄNDER and COHN), A., i, 265.

Indigotsulphonic acid, sodium salt, excretion of, by the serpent's kidneys (TRIBONDEAU), A., ii, 672.

Indigo-white, tetrabenzoyl derivative (HELLER), A., i, 827.

Indirubin, constitution of (MAILLARD), A., i, 761.

Indium hydroxide, solubility of, in ammonia and amines (RENZ), A., ii, 729.
 oxide (RENZ), A., ii, 548.

Indole, formation of, in rabbits during inanition (ELLINGER), A., ii, 670.

Indole dyes (FREUND and LEBACH), A., i, 278.

Indoles, action of alkyl iodides on (PLANCHER), A., i, 114, 433; (PLANCHER and BONAVIA), A., i, 433.

Indoxyl, preparation of (DEUTSCHE GOLD- and SILBERSCHEIDEFANSTALT VORM. ROESSLER), A., i, 632.
 synthesis of (BAMBERGER and ELGER), A., i, 560.
 in urine (GNEZDA; MAILLARD), A., ii, 563.

Indoxyl, bromo- and chloro- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 32.
 dibromo- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 345.

Indulines of the aminoazobenzene fusion (FISCHER and HEPP), A., i, 134.

Infants, new-born, ash of (SÖLDNER and CAMERER), A., ii, 164.

Infusoria, action of fluorescent substances on (RAAB), A., ii, 166.
 action of poisons on (KORENTSCHEWSKY), A., ii, 313.

Inorganic substances, action of cathode rays on (GOLDSTEIN), A., ii, 524.

Internal friction. See Viscosity.

International Congress of Applied Chemistry, P., 44.

Intestinal absorption (HÖBER), A., ii, 309.

Intestine, small, digestion and absorption in the (ZUNZ), A., ii, 159.
 pigmented atrophy of the mucous membrane of the, of malarial origin (ROGERS), A., ii, 675.
 of dogs, absorption and fermentative splitting of carbohydrates in the (RÖHMANN and NAGANO), A., ii, 494.

Inversion of sugar in plastered wines (MAGNANINI), A., ii, 231.

Invertase, law of action of (HENRI), A., i, 219, 304.

Invertebrates, blood coagulation in (DUCCESCHI), A., ii, 162.

Iodic acid. See under Iodine.

Iodine, preparation of pure (DE KONICK), A., ii, 751.
 purification and estimation of (GROSS), A., ii, 751.
 velocity of the reaction between arsenious acid and, in acid solution; rate of the reverse reaction and the equilibrium between them (ROEBUCK), A., ii, 14.
 in an aqueous potassium iodide solution, vapour tension of (ANDREWS), A., ii, 11.
 molecular weight of (ODDO), A., ii, 60.
 influence of salts on the solubility in water of (MC LAUCHLAN), A., ii, 716.
 solutions, probable cause of the different colours of (LACHMAN), A., ii, 283.
 action of, on alkalis (FOERSTER and GYR), A., ii, 209.
 action of, on the copper pellicles obtained by ionoplastics (HOULLEVIGUE), A., ii, 597.
 action of, on nicotine (KIPPENBERGER), A., ii, 582.
 molecular compounds of (STRÖMHL), A., ii, 644.
 compounds of, with oxygen, electrochemistry of (MÜLLER), A., ii, 629.
 and sulphur, mixtures of (BOULOUCH), A., ii, 538.

Iodine in cells (JUSTUS), A., ii, 311.
 in bony tumours with thyroid-like structure (GIERKE), A., ii, 164.
 in the thyroid (NAGEL and Roos), A., ii, 226.
 action of on lymphoid tissues (LABBÉ and LORTAT-JACOB), A., ii, 498.

Iodine pentafluoride (MOISSAN), A., ii, 17.

Hydriodic acid (*hydrogen iodide*), velocity of the reaction between potassium persulphate, phosphorous acid, and (FEDERLIN), A., ii, 14.
 compensation method of determining the rate of oxidation of (BELL), A., ii, 275.
 interaction of, with chloric acid (MCCRae), P., 225.

Iodides, estimation of, when mixed with other salts (KIPPENBERGER), A., ii, 450.

Iodic acid, use of, for the titration of metals, and estimation of (RUPP), A., ii, 755.

Iodates, compounds of, with selenates (WEINLAND and BARTLINGCK), A., ii, 420.

Periodic acid, basicity of (ASTRUC and MURCO), A., ii, 17.

Periodides (STRÖMHLOM), A., i, 462.

Hypoiodous acid, formation of (TAYLOR), A., ii, 138.

Iodine, detection of bromine, chlorine, and, in presence of one another (BENEDICT and SNESS), A., ii, 750.
 spectroscopic detection of bromine, chlorine, and small quantities of (PANAOTOVIC), A., ii, 177.
 qualitative test for bromides and (PERKIN), A., ii, 177.
 detection of, in urine (CATHCART), A., ii, 572.
 source of error when testing for, in urine (GUERBET), A., ii, 511.

Iodoform, preparation of, by means of acetylene (LE COMTE), A., i, 61.
 electrolytic preparation of, from acetone (ABBOTT), A., ii, 305.
 decomposition of, influence of radium rays on the (HARDY and WILLCOCK), A., ii, 622.

Iodometric estimations, degree of accuracy of (PINNOW), A., ii, 39.
 standardisation (DITZ and MARGOSCHES), A., ii, 450.

Iodoso- and Iodoxy-compounds, substitution of oxygen by fluorine in (WEINLAND and STILLE), A., i, 748.

Ionisation and Ions. See Electrochemistry.

Ionone, preparation of (HAARMANN & REIMER), A., i, 349.
 derivatives of (HAARMANN & REIMER), A., i, 504.

γ-Ionone hydrate and its semicarbazone (COULIN), A., i, 837.

Ipéca cuanha alkaloids, reactions of (ALLEN and SCOTT-SMITH), A., ii, 117.

Ipo_h, physiological action of (SELIGMANN), A., ii, 314.

Iridium and its compounds (MIOLATI and GIALDINI), A., ii, 24.

Iridium alkali nitrates (LEIDIÉ), A., ii, 24.
 osmides, analysis of (LEIDIÉ and QUENNESSEN), A., ii, 576.
 rubidium alum (MARINO), A., ii, 376.

Iron, preparation of pure (SKRABAL), A., ii, 22.
 permanent protection of (TOCH), A., ii, 650.
 cementation of (CHARPY), A., ii, 430, 599.
 corrosion of (WHITNEY), A., ii, 430.
 rusting of, and its passivity (MUGDAN), A., ii, 484.
 chemical reactions involved in the rusting of (DUNSTAN), P., 150; (MOODY), P., 157, 239.
 passivity of (FREDENHAGEN), A., ii, 353.
 action of carbon monoxide on (CHARPY), A., ii, 599.
 forms of silicon in (NASKE), A., ii, 549.
 in sponges (COTTE), A., ii, 311.
 in the organism (SCHMEY), A., ii, 740.
 in normal and pathological human urine (NEUMANN and MAYER), A., ii, 227.
 influence of, on peptic digestion (COHN), A., ii, 166.

Iron salt solutions, is the coefficient of magnetic susceptibility for, dependent on the field strength? (HEYDWEILLER), A., ii, 710.

Iron and manganese carbides and silicides, crystalline forms of (SPENCER), A., ii, 373.
 nitrides (GUNTZ), A., ii, 79.
 oxides, equilibrium between, and carbon monoxide and carbon dioxide (BAUR and GLAESNER), A., ii, 423.
 action of carbon monoxide on (CHARPY), A., ii, 599.

Ferric chloride, theory of the action of, in the synthesis of organic compounds (GUREWITSCH), A., i, 40.

Iron:—

Ferric potassium chloride, use of, in making the estimation of carbon in steel (SARGENT), A., ii, 332.
hydroxide, compounds of, with methylarsinic acid (LEPRINCE), A., i, 329.
sulphate, compound of, with sulphuric acid (RECOURA), A., ii, 599.

Ferrous salts, oxidation of (MANCHOT and WILHELM), A., ii, 152.
rate of oxidation of, by chromic acid (BENSON), A., ii, 200.
iodometry of (RUPP), A., ii, 244.
sulphate, potassium iodide, and chromic acid, rate of reactions in solutions containing (BENSON), A., ii, 534.

Iron works laboratories, use of hydrofluoric acid in (FRIED), A., ii, 391.

Iron, oligist, reduction of, to magnetite by hydrocarbons (DE LAUNAY), A., ii, 379.

of Ovifak, Greenland, composition of (WINKLER), A., ii, 305.

Steel, spontaneous decarburisation of (BELLOC), A., ii, 297.

decarburisation of, by evaporation under reduced pressure (BELLOC), A., ii, 484.

permanent protection of (TOCH), A., ii, 650.

theory of the tempering of (LE CHATELIER), A., ii, 374.

estimation of carbon in, by combustion (AUCHY), A., ii, 241.

use of ferric potassium chloride for the solution of, in making the estimation of carbon (SARGENT), A., ii, 332.

estimation of manganese in (STEHMAN), A., ii, 243; (WALTERS), A., ii, 513.

estimation of molybdenum in (AUCHY), A., ii, 336.

rapid estimation of phosphorus in (AUCHY), A., ii, 693.

estimation of sulphur in (KLEINE), A., ii, 694.

Iron (in general), **estimation and separation of:**—

analysis of (DOUGHERTY), A., ii, 45; (NASKE; BISCHOFF), A., ii, 185.
estimation of, photometrically (HINDS and CULLUM), A., ii, 45.

Rivot's quantitative estimation of, in presence of zirconium (DANIEL and LEBERLE), A., ii, 392.

estimation of, volumetrically, by permanganate (SKRABAL), A., ii, 684; (CLASSEN), A., ii, 759.

Iron (in general), estimation and separation of:—

modification of the thiosulphate method for the volumetric estimation of (HASWELL), A., ii, 185.

estimation of manganese in (STEHMAN), A., ii, 243; (WALTERS), A., ii, 513; (v. KNORRE), A., ii, 760.

estimation of sulphur in (SEYLER), A., ii, 450; (KLEINE), A., ii, 694.

estimation of, in decarbonised substances (NEUMANN), A., ii, 243.

estimation of, in urine (ZICKGRAF), A., ii, 46.

estimation of, in natural waters (WINKLER), A., ii, 108.

electrolytic separation of, from aluminium, manganese, and from zinc (HOLLARD and BERTIAUX), A., ii, 513.

separation of manganese and (DITTRICH), A., ii, 576.

accuracy of the acetate method for separating manganese from (MITTASCH), A., ii, 760.

separation of, electrolytically, from manganese (KÖSTER), A., ii, 760.

separation of, quantitatively, from zirconium (GEISOW and HORKHEIMER), A., ii, 109.

Ionic acid, condensation of, to cinchonic acid and its derivatives (PFITZINGER), A., i, 53.

Isatin, benzoylation of (HELLER), A., i, 827.

Isatin, α -thio- (SANDMEYER), A., i, 486.

and its conversion into indigotin (GEIGY & Co.), A., i, 33.

α -Isatinanilide (SANDMEYER), A., i, 486.

Isomerides, dynamic, solubility of (LOWRY), P., 156.
 σ -, m -, and p -, ultra-violet absorption spectra of (MAGINI), A., ii, 706.
optical, physiological action of (CUSHNY), A., ii, 564.

Isomerism, peculiar case of (SCHROETER and MEERWEIN), A., i, 831.

Isomorphism and solid solutions (PADOA), A., ii, 715.

Isomorphous mixtures, similarity of solid to liquid solutions of (STORTENBEKER), A., ii, 470.

Isopyrone and its salts (FRANKFORTER), A., i, 357.

β -Itamalic acid and its salts (LUTZ), A., i, 148.

J.

Jaquemase (Asō and Pozzi-Escot), A., ii, 322.
Jaundice, yellow colour of the skin in cases of, in which the urine is free from bile pigment (THIELE), A., ii, 385.

K.

Kainite (MEYERHOFFER), A., ii, 292.
 higher temperature limit of formation of (VAN'T HOFF and MEYERHOFFER), A., ii, 555.
Kairoline (1-methyltetrahydroquinoline) (DECKER, ELIASBERG and WISŁOCKI), A., i, 718.
 hydriodide and methiodide (WEDEKIND and OECHSLER), A., i, 54.
Kairoliniumiodoacetic acid, esters (WEDEKIND and OECHSLER), A., i, 54.
Kalgoorlite, non-existence of, as mineral species (SPENCER), A., ii, 378.
Kaliborate, artificial preparation of (VAN'T HOFF), A., ii, 143.
Kampheride, potassium salt of (PERKIN and WILSON), T., 135.
Kampheral (PERKIN and PHIPPS), P., 284.
Kapok oil (PHILIPPE), A., ii, 340.
Karakin from the karaka tree (EASTERFIELD and ASTON), P., 191.
Kedabekite from the Caucasus (FEDOROFF), A., ii, 436.
4-Keto-2-alkylquinazolines, synthesis of (BOGERT and HAND), A., i, 292.
4-Keto-2-anilinodihydroquinazoline (WHEELER, JOHNSON, and MCFARLAND), A., i, 859.
 α -Keto- α -benzoylacetic acid, ethyl ester, $\alpha\beta$ -dimethylaminoanil of (SACHS, WOLFF, and KRAFT), A., i, 793.
4-Keto-5-benzylidene-2- β -naphthyl-iminotetrahydrothiazole (JOHNSON), A., i, 580.
4-Keto-3- α -carboxyphenyl-2-methyl-quinazoline (ANSCHÜTZ and SCHMIDT), A., i, 56, 57; (ANSCHÜTZ, SCHMIDT, and GREIFFENBERG), A., i, 57.
4-Keto-2- α -carboxyphenylquinazoline (ANSCHÜTZ and SCHMIDT), A., i, 57.
Ketocoumaryl- β -naphthafuran (STOERMER and SCHÄFFER), A., i, 847.
 α -Ketodihydrosoapiole, bromo- (POND and SIEGFRIED), A., i, 417.
Ketodihydro- β -camphrylic acid, dihydroxy- (PERKIN), T., 845.

Ketodihydrotoluene, tetra-, penta-, and hexa-chloro- (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 756.
Ketodimethylcyclopentamethylenecarboxylic acid (PERKIN and THORPE), P., 61.
3-Keto-1:1-dimethyl- Δ^4 -tetrahydrobenzene, 5-bromo- and 5-chloro-, and their semicarbazones (CROSSLEY and LE SUEUR), T., 111.
 4:5-di-, 2:4:5-tri-, and 2:2:4:5-tetrabromo- (CROSSLEY and LE SUEUR), T., 114.
Ketodiol, $C_{16}H_{14}O_3$ from the hydrolysis of acetoxydiphenacyl (PAAL and SCHULZE), A., i, 709.
4-Keto-1:3-diphenylpyrazolone and its oxime, semicarbazone, and other derivatives (SACHS and BECHERESCU), A., i, 529.
 α -Ketoglutaric acid, $\beta\delta$ -dicyano-, ethyl ester (MICHAEL), A., i, 736.
Ketohydrazines, reduction of (DARAPSKY), A., i, 367.
Ketolactonic acid, $C_8H_9O_3Cl$, methyl and ethyl esters, and their semicarbazones, from epichlorohydrin and the sodium derivative of acetonedicarboxylic esters (HALLER and MARCH), A., i, 319, 714.
2-Keto-1-methyl-1-dichloromethylidihydrobenzene and its semicarbazone (AUWERS and KEIL), A., i, 100.
4-Keto-1-mono-, -1:2- and -1:3-di-, and 1:2:5-tri-methyl-1-dichloromethylidihydrobenzenes and their semicarbazones (AUWERS and KEIL), A., i, 100.
Ketomethylcyclopentanecarboxylic acid and its isomeride, and their salts, ethyl esters and oximes (SVOBODA), A., i, 174; (MICHAEL), A., i, 348.
2-Keto-1-methylcyclopentanecarboxylic acid, ethyl ester (PRJEWALSKY), A., i, 728.
Ketomethylcyclopentanetricarboxylic acid, ethyl ester (SVOBODA), A., i, 174; (MICHAEL), A., i, 348.
4-Keto-2-methylquinazoline (ANSCHÜTZ and SCHMIDT), A., i, 56; (ANSCHÜTZ, SCHMIDT, and GREIFFENBERG), A., i, 57.
4-Keto-2-methylquinazoline, 3-hydroxy- (ANSCHÜTZ, SCHMIDT, and GREIFFENBERG), A., i, 58.
Ketone (m.p. 150°–165°) from the reduction of nitrodihydrocamphene (KONOWALOFF and KIKINA), A., i, 269.
 $C_6H_{12}O$, and its nitroso-derivative, in the by-products from the manufacture of aniline (AHRENS and BLÜMEL), A., i, 813.

Ketone, $C_8H_{14}O$, and its *p*-nitrophenylhydrazone, from the reduction of the polymeride of diacetyl (DIELS and JOST), A., i, 427.
 $C_9H_{14}O$, and its semicarbazone, from the oil of the wood of atlas cedar (GRIMAL), A., i, 46.
 $C_9H_{16}O_2$, from the oxidation of dihydrocarboxide (SEMMLER), A., i, 353.
 $C_{10}H_{14}O$, and its oxime and semicarbazone, from the oxidation of pinene (HENDERSON, GRAY, and SMITH), T., 1304; P., 196.
 $C_{18}H_{34}O$, from the condensation of methyl heptyl ketone (THOMS and MANNICH), A., i, 679.
 $C_{22}H_{42}O$, and its oxime, phenylhydrazone, and semicarbazone, from the condensation of methyl nonyl ketone (THOMS and MANNICH), A., i, 679.
Ketones, synthesis of, from *C*-acylacetic esters (BOUVEAULT and BONGERT), A., i, 141.
electrolytic preparation of (MOEST), A., i, 546.
formation of, from α -glycols and from α -oxides (KRASSUSKY), A., i, 8.
isomeric transformation of the α -oxides of olefines into (MARKOWNIKOFF), A., ii, 200.
electrochemical reduction of (ELBS and BRAND), A., i, 99.
velocity of combination of, with potassium hydrogen sulphite (PETRENKO-KRITSCHENKO and KESTNER), A., ii, 719.
interaction of, with acid chorides (LEES), T., 145.
action of halogens on (LAPWORTH), P., 188.
reaction of, with phenylhydrazine (PETRENKO-KRITSCHENKO and ELTSCHANINOFF), A., i, 440.
influence of the medium on the speed of reaction of, with phenylhydrazine (PETRENKO-KRITSCHENKO and KONSCHIN), A., ii, 719.
action of sodium on (ACREE), A., i, 724.
compounds of, with sulphuric acid (HOOGEWERFF and VAN DORP), A., i, 170.
transformation of, into alcohols by catalytic hydrogenation (SABATIER and SENDERENS), A., i, 733.
micro-chemical analysis of (BEHRENS), A., ii, 246.
cyclic, from chloroform and phenols (AUWERS and KEIL), A., i, 100, 620.
transformation of, into alkylamines and cyclic bases not containing oxygen (WALLACH), A., i, 103.

Ketones, racemic. See Racemic.
 $\alpha\beta$ -unsaturated, addition of acids to (VORLÄNDER and MUMME), A., i, 495; (THIELE and STRAUS), A., i, 707.
See also Diketones and Triketones.
Ketonic acid, $C_{10}H_{16}O_3$, and its esters and phenylhydrazone, from the action of sulphuric acid on camphorquinone (MANASSE and SAMUEL), A., i, 45.
 $C_{10}H_{16}O_3$, and its semicarbazone, from the base, $C_{10}H_{19}O_2$ (SEMMLER), A., i, 353.
Ketonic acids, velocity of reaction of, with phenylhydrazine (KLDIASCH-WILI), A., ii, 719.
micro-chemical analysis of (BEHRENS), A., ii, 246.
Ketonic acids, esters, action of magnesium organic compounds on (GRIGNARD), A., i, 31, 141.
 β -Ketonic acids and their esters, new synthesis of (MOUREU and DELANGE), A., i, 399.
optically active esters of (LAPWORTH), T., 1114; P., 149; (HANN and LAPWORTH), P., 291.
Ketonic bases (SCHEDA), A., i, 410; (SCHMIDT), A., i, 427.
Ketonic compounds, action of halogens on (LAPWORTH), P., 188.
 β -Keto-olefinecarboxylic acids, ethyl esters, action of ammonia and organic bases on (RUHEMANN), T., 374, 717; P., 50, 128.
4-Keto-2-phenyldihydroquinazoline (v. WALTHER), A., i, 583.
4-Keto-3-phenyldihydroquinazoline, 2-amino- and 2-chloro- (WHEELER, JOHNSON, and MCFARLAND), A., i, 860.
5-Keto-1-phenyl-4:5-dihydrotriazole, 3-hydroxy-, and its disilver derivative (ACREE), A., i, 867.
3-thiol- (ACREE), A., i, 867.
4-Keto-2-phenylimino-5-benzylidene-tetrahydrothiazole (WHEELER and JAMIESON), A., i, 521.
4-Keto-3-phenyl-2-methylquinazoline and its hydrochloride (ANSCHÜTZ, SCHMIDT, and GREIFFENBERG), A., i, 57.
Ketostearic acid, hydroxy-, and its acetyl derivative, phenylhydrazone and semicarbazone (HOLDE and MARCUSSON), A., i, 789.
 γ -Ketostearic acid and its oxime (SHUKOFF and SCHESTAKOFF), A., i, 398.
 κ -Ketostearic acid, and its calcium salt (SHUKOFF and SCHESTAKOFF), A., i, 398.

3-Keto- Δ^4 -tetrahydrobenzene, 5-bromo- and 5-chloro-, and their semicarbazones (CROSSLEY and HAAS), T., 494; P., 75.

Ketothioalkyldihydroquinazolines, synthesis of, from anthranilonitrile (BOGERT, BRENEMAN, and HAND), A., i, 527.

Keweenawite from the Mohawk mine, Keweenaw Co., Michigan (KOEVIG), A., ii, 157.

Kidney, human, enzymes in the (BATTENSTEIN and BARRAJA), A., ii, 561.

Kinase, presence of, in some Basidiomycetes (DELEZENNE and MOUTON), A., ii, 229.

antikinase, and prothrypsin (DASTRE and STASSANO), A., ii, 497.

Kjeldahl apparatus, new form of (VOGTHERR), A., ii, 179.

Köttigite, artificial production of (DESCHULTEN), A., ii, 655.

Kola, constituents of, and their estimation (DEKKER), A., ii, 619.

Kô-sam. See *Brucea sumatrana*.

Krypton, attempt to estimate the relative amounts of xenon and, in atmospheric air (RAMSAY), A., ii, 476.

L.

Lacroisite from the Aure Valley in the Pyrenees (LIENAU), A., i, 223.

Lactase (BOURQUELOT and HÉRISSEY), A., i, 784.

Lactic acid (*i*-ethylidenelactic acid; α -hydroxypropionic acid), presence of, in the muscles of Invertebrates and the lower Vertebrates (GAUTRELET), A., ii, 659.

estimation of, in wine (KUNZ), A., ii, 701.

estimation of, in the volatile acids of wine (PARTHEIL), A., ii, 189.

Lactic acid, salts, compounds of, with pyridine (REITZENSTEIN), A., i, 112.

Lactic acid, trichloro-, methylene and phenylhydrazine compounds of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 149.

α -thio- (FRIEDMANN), A., i, 301.

γ -Lactic acid and its potassium salt, influence of molybdenum and tungsten trioxides on the specific rotations of (HENDERSON and PRENTICE), T., 259; P., 12.

Lactic acid fermentation. See under Fermentation.

Lactone, $C_{19}H_{18}O_2$, from the α -oxylactone, $C_{19}H_{15}O_3$ (ERLENMEYER), A., i, 419.

Lactones, labile and stable (ERLENMEYER), A., i, 676.

Lactose (*milk sugar*) from buffalo's milk (PORCHER), A., i, 785.

multirotation of (HUDSON), A., ii, 623.

detection of, in urine by phenylhydrazine (PORCHER), A., ii, 579.

separation of maltose and (BOYDEN), A., ii, 112.

Lactose, bromo- and chloro-, hepta-acetyl derivatives of (DITMAR), A., i, 151.

Lacturamic acid, ethyl ester, and its acetyl derivative (HARRIES and WEISS), A., i, 739.

Lacturamide acid, ethyl ester and the action of sodium ethoxide on (BAILEY), A., i, 129.

Lævulic acid, transformation of, into derivatives of cyclopentadiene (DUDEN and FREYDAG), A., i, 420.

Lævulic acid, ethyl ester, action of alkyl magnesium bromides on (GRIGNARD), A., i, 32.

Lævulose (*d-fructose*), velocity of hydrolysis of (HERZOG), A., ii, 230.

action of hydrogen peroxide on, in presence of ferrous sulphate (MORRELL and CROFTS), T., 1290; P., 208.

Lævulose- β -naphthylhydrazone (HILGER and ROTHENFUSSER), A., ii, 188.

Lamp-black (*amorphous carbon*), combustion of, in oxygen (MOISSAN), A., ii, 142.

Lanthanum (MUTHMANN and KRAFT), A., ii, 212.

atomic weight of (JONES), A., ii, 650.

Lanthanum hydride, dissociation of (MUTHMANN and BAUR), A., ii, 213.

hydride and nitride (MUTHMANN and KRAFT), A., ii, 212.

specific heat of (KELLENBERGER and KRAFT), A., i, 213.

Lariciresinol, oxidation of, and its diacetyl derivative and dimethyl ether (BAMBERGER and RENEZEDER), A., i, 643.

diethyl ether, diacetate of (HERMANN), A., i, 267.

Latent heat. See Thermochemistry.

Laudanine and **Laudanosine**, absorption spectra of, in relation to their constitution (DOBBIE and LAUDER), T., 626; P., 9.

*iso***Laudanine** (PICTET and KRAMERS), A., i, 358.

Laurene, existence of (DE MARIA), A., i, 843.

Lauronic anhydride, *i*-amino-, and *i*-nitrosoamino- (NOYES and WARREN), A., i, 147.

Lauronic chloride, *i*-amino- (NOYES and WARREN), A., i, 147.

isoLauronolic acid, synthesis of (PERKIN and THORPE), P., 61.

Lavoisier's laboratory note-books (BERTHELOT ; BROCARD), A., ii, 16.

Lead, radioactive, as a primary active substance (HOFMANN and WÖLFL), A., ii, 402.

rays emitted by (KORN and STRAUSS), A., ii, 463.

effect of strain on the crystalline structure of (HUMFREY), A., ii, 137.

anode, behaviour of a, in solutions of sodium hydroxide (ELBS and FORSELL), A., ii, 5.

cathodic deposition of (ELBS and RIXON), A., ii, 427.

normal presence of, in the organism (MEILLÈRE), A., ii, 499.

chamber process. See Sulphuric acid under Sulphur.

Lead alloys with tin and bismuth (SHEPHERD), A., ii, 77, 196.

Lead chloronitroiridium compound (MIOLATI and GIALDINI), A., ii, 25.

Plumbic salts (ELBS and NÜBLING), A., ii, 727.

Lead bromide, chloride, and iodide, solubility of, in water (LICHTY), A., ii, 480.

carbonate and chromate, anode potentials in the formation of (JUST), A., ii, 629.

chloride, fused, electrolysis of (APPELBERG), A., ii, 630 ; (LORENZ), A., ii, 631.

perchloride, composition of (DE KONINCK), A., ii, 21.

ammonium chloride (SEYEWETZ and TRAWITZ), A., ii, 371.

dichromate (MAYER), A., ii, 550.

periodates (GIOLITTI), A., ii, 211.

dioxide, new reaction for (DE KONINCK), A., ii, 21.

as absorbent in ultimate analysis (DENNSTEDT and HASSSLER), A., ii, 686.

use of, in analysis (BOGDAN), A., ii, 576.

peroxide, electrolytic (HOLLARD), A., ii, 294.

Plumbic acid, compounds of, with acetic, propionic, and butyric acids (COLSON), A., i, 396, 456, 601.

Lead calcium orthoplumbate (KASSNER), A., ii, 371.

sulphate, action of tartaric acid and its salts on (REICHARD), A., ii, 727.

Lead cyanate, formation of urea by the direct hydrolysis of (CUMMING), T., 1391 ; P., 274.

Lead, detection of (TRILLAT), A., ii, 512.

detection and estimation of, electrolytically (MEILLÈRE), A., ii, 183.

titration of antimony in crude (NISSENSON and SIEDLER), A., ii, 697.

estimation of (SCHLOSSBERG), A., ii, 184.

estimation of, in ores (BULL), A., ii, 183.

separation of, from manganese, electrolytically (LINN), A., ii, 242.

Leaves, evergreen, starch in, and its relation to carbon assimilation in winter (MIYAKE), A., ii, 96.

Lecithane and their function in the life of the cell (KOCH), A., i, 301.

Lecithin in fats and oils (JÄCKLE), A., ii, 191.

in suprarenal bodies (BERNARD, BIGART, and LABBÉ ; MULON), A., ii, 311.

diminution of, in heated milk (BORDAS and DE RACZOWSKI), A., ii, 500.

influence of, on normal growth (HATAI), A., ii, 609.

Lecithin, egg-, fatty acids of (COUSIN), A., i, 675.

Leiphoemic acid (ZOPF), A., i, 763.

Lemon oil (SCHIMMEL & Co.), A., i, 186.

Lemon pips, oil of (PETERS and FRERICHS), A., i, 309.

Leonite, higher temperature limit of formation of (VAN'T HOFF and MEYERHOFFER), A., ii, 555.

Lepidine. See 4-Methylquinoline.

Lepidolite from Western Australia (SIMPSON), A., ii, 381.

Lepidoptera, pigments of the (V. LINDEN), A., ii, 677.

Leucæmia, lymphatic, nuclein metabolism in (HENDERSON and EDWARDS), A., ii, 671.

Leucine, separation of, from tyrosine (HABERMANN and EHRENFIELD), A., ii, 192.

*d-iso***Leucine** and its derivatives from sugar residues (EHRLICH), A., i, 796.

Leucocytes, permeability of, by anions of sodium salts (HAMBURGER and VAN DER SCHROEFF), A., ii, 163.

Leucocytic changes following splenectomy combined with intravenous injections of sodium cinnamate (SHAW), A., ii, 501.

Leucocytosis, digestive (GOODALL, GULDAND, and NÖEL PATON), A., ii, 669.

Leucylglycylglycine and its ester and amide (FISCHER), A., i, 799.

Libollite (GOMES ; DE SOUZA-BRANDÃO), A., ii, 27.

Lichenic acids, crystallography of some (KAPPEN), A., i, 175.
Lichens and their characteristic constituents (HESSE), A., i, 702; (ZOPF), A., i, 762.
Lichesteric acid (*lichenostearic acid*) (BÖHME), A., i, 316.
Lichesteryllic acid (BÖHME), A., i, 317.
Light. See Photochemistry.
Lignin, estimation of, in foods and fodders (KÖNIG), A., ii, 764.
Lime. See Calcium oxide.
Limestone, chemical method for determining the quality of (PETER), A., ii, 333.
 magnesian, weathering of (POLLARD), A., ii, 383.
Limonin (PETERS and FRERICHS), A., i, 309.
Linalool from the oil of *Cinnamomum pedatinerium* of Fiji (GOULDING), T., 1099; P., 201.
Linkings, double, nature of (KNOEVENAGEL), A., i, 785.
Linseed, estimation of oil in (GOETZL), A., ii, 191.
Linseed oil, examination of (SJOLLEMA), A., ii, 703.
Lipase from animal organs and the reversibility of its power of decomposing fats (MOHR), A., i, 219.
 hydrolysis of ethyl mandelate by (DAKIN), P., 161.
 pancreatic, action of, in presence of blood (DOYON and MOREL), A., ii, 660.
 estimation of the activity of (GARNIER), A., ii, 660.
Lipochrome, chlorophyll, and haemoglobin (MARCHLEWSKI), A., i, 667.
Lipolytic actions (POTTEVIN), A., ii, 439.
 reversibility of (POTTEVIN), A., ii, 494.
Liquefaction of air and hydrogen, apparatus for the (OLSZEWSKI), A., ii, 203.
 of hydrogen, apparatus for the (OLSZEWSKI), A., ii, 203, 642.
Liquid substances, relation of viscosity of, to temperature and chemical constitution (BATSCHEINSKI), A., ii, 12.
Liquids, classification of, by means of magnetic dichroism (MESLIN), A., ii, 529.
 magnetic and electric dichroism of (MESLIN), A., ii, 408.
 thermal properties of solids and (LUSANA), A., ii, 713.
 relation between Stefan's formulae for the internal pressure of, and van der Waals' equation (BRANDT), A., ii, 641.
Liquids, new determinations of the surface tension of, based on the capillary wave method (GRUNMACH), A., ii, 132.
 mixed, spontaneous dichroism of (MESLIN), A., ii, 521.
 influence of temperature on the dichroism of, and verification of the law of indices (MESLIN), A., ii, 585.
 vapour pressures and boiling points of (YOUNG and FORTEY), T., 45; (YOUNG), T., 68.
 of constant boiling point, determination of the composition of (YOUNG), T., 77.
 molecular surface energy of (RAMSAY and ASTON), A., ii, 133.
 surface tension of (HERZEN), A., ii, 132.
 viscosity of (DUNSTAN and JEMMETT), P., 215.
 organic, polymerisation of (LONGINESCU), A., ii, 531.
Lithium, spectrum of (HAGENBACH), A., ii, 122.
 abnormal changes in some lines in the spectrum of (RAMAGE), A., ii, 193.
Lithium carbonate, decomposition of, by heat (LEBEAU), A., ii, 477.
 nitrate and its hydrates, solubilities and transition-points of (DONNAN and BURT), T., 335; P., 37.
 hyposulphite, synthesis of (MOISSAN), A., ii, 76.
Lithopone, analysis of (COFFIGNIER), A., ii, 44.
Liver, destruction of blood corpuscles in the (BAIN), A., ii, 493.
 the glycogen-splitting enzyme of the (PICK), A., ii, 160.
 nucleo-proteid of the (WOHLGEMUTH), A., ii, 440.
 fetal, glycogen of the (PFLÜGER), A., ii, 384.
 perfused, formation of glycogen in (GRUBE), A., ii, 440.
 formation of sugar in the (KRAUS), A., ii, 740.
 estimation of glycogen in (SALKOWSKI), A., ii, 47.
Loams from the Nürnberg district (KAUL), A., ii, 30.
Longstaff medal, presentation of the, to Professor W. J. Pope, P., 180.
Lophine. See Triphenylglyoxaline.
Lotrite, in the serpentine of Paringu, Southern Carpathians (MUNTEANU-MURGOCI), A., ii, 29.
Luminescence of gases (DE HEMPTINNE), A., ii, 193.

Lupanine, constitution of (SOLDAINI), A., i, 850.
Lupins, yellow, cultivation of (DEHÉ-RAIN and DEMOUSSY), A., ii, 37.
Lupinus angustifolius, changes in the proteid phosphorus of (ZALESKI), A., ii, 94.
 seedlings, changes in the so-called "lead-blackening" sulphur in relation to the total sulphur in (SERTZ), A., ii, 568.
Lutidines. See Dimethylpyridines.
Lutidone haloid salts and phenylhydrazone (PETRENKO-KRITSCHENKO and STAMOGLU), A., i, 197.
Lychnidin from *Lychnis flos cuculi* (SÜSS), A., i, 192.
Lymph cells, permeability of, by anions of sodium salts (HAMBURGER and VAN DER SCHROEFF), A., ii, 163.
 flow and secretin (MENDEL and TREACHER), A., ii, 561.
 glands. See Glands.
Lymphoid tissues, action of iodine on (LABBÉ and LORTAT-JACOB), A., ii, 498.
Lysine, oxidation of (ZICKGRAF), A., i, 13.
i-**Lysine**. See Hexoic acid, *i*-α-*diamino*.
Lysins and precipitins (FUHRMANN), A., ii, 227.

M.

Mace, carbohydrates of (BRACHIN), A., ii, 568.
Magnesite, chemical studies of (VESTERBERG), A., ii, 302.
 in Greece (ZENGELIS), A., ii, 28.
Magnesium, new lines in the spectrum of (FOWLER), A., ii, 461.
 combustion of (CHRISTOMANOS), A., ii, 546.
 metallic, action of, on water and on aqueous solutions of metallic salts (KAILENBERG), A., ii, 426; (ROBERTS and BROWN), A., ii, 726.
 powder, syntheses in the camphor group with (MALMGREN), A., i, 103, 710.
Magnesium alloys with copper (BOUDOUARD), A., ii, 78, 480.
Magnesium salts, action of, on lactic acid fermentation (RICHERT), A., ii, 230.
Magnesium arsenate and phosphate, crystallised (DE SCHULTEN), A., ii, 655.
 arsenates and phosphates, hydrated, peculiar property of (DE SCHULTEN), A., ii, 647.
 carbonate and its double salts with ammonium potassium and sodium carbonates (v. KNORRE), A., ii, 370.

Magnesium chloride, behaviour of, in a steam boiler (FELD), A., ii, 77.
 hydroxide, the phenomena of adhesion, and of solution in the precipitation of (PATTEN), A., ii, 272.
suboxide (CHRISTOMANOS), A., ii, 546; (BABOROVSKÝ), A., ii, 726.
oxide (magnesia), solubility of, in water (DUPRÉ and BIALAS), A., ii, 293.
 use of, for the estimation of amidic nitrogen (MÜLLER), A., ii, 612.
peroxide, iodometry of (RUPP), A., ii, 42.
Magnesium organic compounds (BODROUX; SACHS and LOEUVY), A., i, 592.
 synthesis of acids by means of (HOUBEN and KESSELKAUL), A., i, 42.
 synthesis of tertiary aromatic alcohols by means of (MASSON), A., i, 28.
 use of, in the syntheses of hydrocarbons (WERNER and ZILKENS), A., i, 615; (HOUBEN), A., i, 805.
 synthesis of quinols by means of (BAMBERGER and BLANGEY), A., i, 557.
 action of carbonyl chloride on (GRIGNARD), A., i, 455; (SACHS and LOEUVY), A., i, 592.
 action of carbonyl sulphide on (WEIGERT), A., i, 418.
 mode of fission of mixed, and action of ethylene oxide on (GRIGNARD), A., i, 552.
 action of ethyl oxalyl chloride on (GRIGNARD), A., i, 549.
 action of, on ketonic esters (GRIGNARD), A., i, 31, 141.
 mixed, action of, on substances containing nitrogen (MEUNIER), A., i, 544.
 action of nitrogen peroxide on (WIELAND), A., i, 685.
 action of sulphur, selenium, and tellurium on (WUYTS and COSYNS), A., i, 686.
 as a test for the hydroxyl group (TSCHUGAEFF), A., i, 79.
Magnesium alkyl haloids, action of ethyl chlorocarbonate on (HOUBEN), A., i, 825.
 action of, on thiocarbimides (SACHS and LOEUVY), A., i, 334.
Magnesium organic bromides, action of sulphur and of selenium on (TABOURY), A., i, 748.
Magnesium, precipitation of, by sodium carbonate (STILLMAN and COX), A., ii, 647.
 estimation of, with molybdate (RIEGLER), A., ii, 181.

Magnesium, estimation of, in urine (DE JAGER), A., ii, 182.
and calcium, estimation of, volumetrically, in water from salt marshes (D' ANSELME), A., ii, 695.

Magnetic properties of bismuth, influence of temperature on (LOWNDS), A., ii, 264.

Magnetic rotation. See under Photochemistry.

Magnetic susceptibility, is the coefficient of, for iron and manganese salt solutions dependent on the field strength? (HEYDWEILLER), A., ii, 710.

Magnetisation of liquids with change of temperature (PIAGGESI), A., ii, 197.

Magnetite, production of, from oligist iron by hydrocarbons (DE LAUNAY), A., ii, 379.
from the Southern Urals (LOEWINSON-LESSING), A., ii, 28.

Maisins from maize grains (DONARD and LABBÉ), A., i, 215.

Maize, hydrocyanic acid in (BRÜNNICH), T., 794; P., 148.

Maize grains, maisins from (DONARD and LABBÉ), A., i, 215.

Maize oil, a cholesterol from (GILL and TUFTS), A., i, 417.
test for (GILL and TUFTS), A., ii, 517.

Malachite-green and leucomalachite-green derivatives (v. BAEYER and VILLIGER), A., i, 812.

Maldiamide, **Maldi-n-propylamide**, and **Maldibenzylamide**, rotatory power of (McCRAE), T., 1324; P., 230.

Maleic acid (*ethylenedicarboxylic acid*), phenyl and benzyl esters (BISCHOFF and v. HEDENSTROM), A., i, 86.

Malic acid, condensation of, with benzaldehyde (MAYRHOFER and NE-METH), A., i, 344.
methylene compound of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 149.
nitrate (DUVAL), A., i, 676.
estimation of, in wine (KUNZ), A., ii, 701.

Malic acid, cobalt and nickel salts, constitution of, in aqueous solution (TOWER), A., ii, 134.

Malic acid, nitro-, esters of (WALDEN), A., i, 148.

Malon-amide and -anilide, and *isonitroso*, and their salts, preparation of (WHITELEY), T., 24.

Malondimethylamide, *isonitroso*-, and its salts, preparation of (WHITELEY), T., 21, 33.

Malondimethylanilide, *isonitroso*-, and its salts, preparation of (WHITELEY), T., 25.

Malondi-naphthyl- and -tolyl-amides, and *isonitroso*-, and their salts (WHITELEY), T., 24.

Malonic acid, interaction of, with *o*-phenylenediamine (MEYER), A., i, 443.
formation of hydrogen ions from the methylene group of (EHRENFIELD), A., i, 548.
estimation of, by means of potassium permanganate (DURAND), A., ii, 767.

Malonic acid, benzyl and phenyl esters (BISCHOFF and v. HEDENSTRÖM), A., i, 27.
ethyl ester, velocity of hydrolysis and affinity constants of (GOLDSCHMIDT and SCHOLZ), A., i, 458.
acidic properties of (VORLÄNDER, MUMME, GROEBEL, and TUBANDT), A., i, 230.
action of its sodium derivative on (MOORE), P., 276.
sodium derivative, interaction of, with 2:3:4:5-tetrachloropyridine (SELL and DOOTSON), T., 396; P., 48.
addition of, to $\alpha\beta$ -unsaturated ketones and acid esters (VORLÄNDER), A., i, 632.

Malonic acid, bromo- and chloro-, benzamides of (RUHEMANN), T., 379.
 α -nitro-, ethyl ester, ammonium derivative (ULPIANI), A., i, 791.

α -nitro-, ethyl ester, ammonium derivative of, and amide, action of formaldehyde on (ULPIANI and PANNAIN), A., i, 863.
isonitroso-, esters and their transformation into mesoxalic esters (BOUVEAULT and WAHL), A., i, 677.

dithiol-, sodium salt of (AUGER and BILLY), A., i, 310.

Malonic aldoximes and anil, nitro-, and their nitriles and acetyl derivatives (HILL and HALE), A., i, 401.

Malon-p-tolylamide and **Malon-o-tolylamic acid**, ethyl ester and *isonitroso*-, and their salts (WHITELEY), T., 24.

Malt, proteolytic enzymes of (SCHIDROWITZ), A., ii, 680; (WEISS), A., ii, 747.

Malt liquors, identification and composition of (PARSONS), A., ii, 246.

Maltose, equilibrium between dextrose and (POMERANZ), A., ii, 65.
detection of, in presence of dextrose (GRIMBERT), A., ii, 338.
separation of lactose and (BOYDEN), A., ii, 112.

isoMaltose, Lintner's, formation of (DIERSSEN), A., i, 321.

Man., daily nutritive requirements of (NEUMANN), A., ii, 88.

Mandarin leaf oil (SCHIMMEL & Co.), A., i, 187.

Mandelic acid, ethyl ester, hydrolysis of, by lipase (DAKIN), P., 161.

Manganese in sponges (COTTE), A., ii, 311. copper, and silicon, equilibrium which exists between (LEBEAU), A., ii, 298. physiological effect of, and its influence on peptic digestion (COHN), A., ii, 166.

Manganese compounds, action of, on plants (LOEW and SAWA), A., ii, 322 ; (ASō), A., ii, 323.

Manganese salts, oxidation of, by alkali persulphates in acid solution (BAUBIGNY), A., ii, 548. new reaction for (DE KONINCK), A., ii, 21.

Manganese salt solutions, is the coefficient of magnetic susceptibility for, dependent on the field strength ? (HEYDWEILLER), A., ii, 710.

Manganese aluminate (DUFAU), A., ii, 151. borate (ENDEMANN and PAISLEY), A., ii, 215, 372. and iron carbides and silicides, crystalline forms of (SPENCER), A., ii, 373. *tetrachloride*, composition of (DE KONINCK), A., ii, 21. dioxide on the figure in the Grotto at La Moutte (MOISSAN), A., ii, 215.

Permanganic acid, electrochemistry of (INGLIS), A., ii, 352 reduction of, by manganese dioxide (OLSEN), A., ii, 372.

Permanganates as oxidising agents (ULLMANN and UZBACHIAN), A., i, 626.

Manganese silicate containing carbonate from the Aure Valley in the Pyrenees (LIENAU), A., ii, 223. silicide, $MnSi_2$ (LEBEAU), A., ii, 298. $MnSi$, and Mn_2Si (LEBEAU), A., ii, 215, 298. silicides, commercial (LEBEAU), A., ii, 652.

Manganic periodates (PRICE), A., ii, 652. metaphosphate, violet, of Gmelin (BARBIER), A., ii, 151. ammonio-phosphate, violet (BARBIER), A., ii, 151.

Manganous borate (ENDEMANN and PAISLEY), A., ii, 215, 372. hydroxide, the phenomena of adhesion and of solution in the precipitation of (PATTEN), A., ii, 272.

Manganese ferrocyanides (DICKIE), A., i, 155.

potassium cyanide, action of carbon monoxide on (MULLER), A., i, 238.

Manganese, detection of (TRILLAT), A., ii, 512. estimation of (SCHLOSSBERG), A., ii, 184 ; (BAUBIGNY), A., ii, 184, 335, 512. estimation of, as sulphide (RAAB and WESSELY), A., ii, 697. elimination and estimation of, in certain products (POZZI-ESCOL), A., ii, 392. estimation of, in iron (v. KNORRE), A., ii, 760. estimation of, in iron and steel (STEHMAN), A., ii, 243 ; (WALTERS), A., ii, 513. estimation of, in rocks (DITTRICH), A., ii, 107. separation of, from calcium and from chromium (DITTRICH and HASSEL), A., ii, 243. separation of, from cobalt and nickel (POZZI-ESCOL), A., ii, 107. separation of, from lead electrolytically (LINN), A., ii, 242. separation of iron and (DITTRICH), A., ii, 576. accuracy of the acetate method for separating iron from (MITTASCH), A., ii, 760. separation of, electrolytically, from iron (HOLLARD and BERTIAUX), A., ii, 513 ; (KÖSTER), A., ii, 760.

Manganese steels, constitution and properties of (GUILLET), A., ii, 730.

Manganite from Ingowitz, Moravia (KOVÁČ), A., ii, 553.

Manna, composition of (TANRET), A., i, 9.

Manneotetrose and **Manninotriose**, and their acetyl derivatives and metallic compounds, and **Manninotronic acid** (TANRET), A., i, 10.

Mannitol, production of, by the ferments of sour wine (MAZÉ and PERRIER), A., ii, 745. action of phosphoric acid on (CARRÉ), A., i, 307. action of selenyl chloride on (CHABRIÉ and BOUCHONNET), A., i, 307. combination of, with paraldehyde (MEUNIER), A., i, 727. nitrates (WIGNER), A., i, 394.

i. **Mannose**, crystallised (NEUBERG and MAYER), A., i, 551.

Mannoses, transformation of the three, in rabbits (NEUBERG and MAYER), A., ii, 496.

Manometer with zero-adjustment (WOHL), A., ii, 281.

Manures, estimation of available phosphoric acid in (SUTHERST), A., ii, 390.

estimation of potassium in (SJOLLEMA), A., ii, 104; (HARE), A., ii, 511.

Manurial experiments with kainite and "forty per cent. potassium salt" (BACHMANN), A., ii, 38.

Martin slag, agricultural value of (PETERMANN), A., ii, 97.

Mass action. See Affinity.

Matico oil (FROMM and VAN EMSTER), A., i, 188.

Matico-aldehyde and its oxime and phenylhydrazone, **Matico ether**, and **Maticoic acid** and its salts (FROMM and VAN EMSTER), A., i, 188.

Meat extracts, presence of succinic acid in (KUTSCHER and STEUDEL), A., ii, 499; (SIEGFRIED; WOLFF), A., ii, 660.

Medicinal preparations, estimation of ethyl alcohol in (THORPE and HOLMES), T., 314; P., 13.

Medusæ, inorganic constituents of (MACALLUM), A., ii, 441.

Melanite from Cortejana, Huelva, Spain (MOLDENHAUER), A., ii, 303.

Melanochalcite from Calumet, Bisbee, Arizona (KOENIG), A., ii, 156.

Melitriose (melitose). See Raffinose.

Melting point, extrapolation of the, of a chemically homogeneous substance from measurements of the volume in the neighbourhood of the melting point (SOBOLEFF), A., ii, 58.

of alloys, course of the (VAN LAAR), A., ii, 266, 588.

of calcium silicate, sodium silicate, and of their mixtures (KULTASCHEFF), A., ii, 545.

of copper, silver, and gold, application of the phase rule to the (RICHARDS), A., ii, 266.

of some organic compounds at very low temperatures (CARRARA and COPPADORO), A., ii, 712.

of minerals and rocks (DOELTER), A., ii, 26.

of tin amalgams (VAN LAAR), A., ii, 266.

Melting point curves of antimony and silver sulphides (PÉLACION), A., ii, 544.

for binary mixtures of isomorphous substances, possible forms of the (VAN LAAR), A., ii, 631.

Melting point determinations, liquid baths for (SCUDDER), A., ii, 266.

Melting pressure of nitrogen (FISCHER and ALT), A., ii, 72.

Mentha piperita, vegetation of (CHARABOT and HÉBERT), A., ii, 172.

p-Menthadiene, new, formation of, from dihydrocarvylamine (HARRIES), A., i, 743.

m-Menthane, 1:3-diamino- (HARRIES and ANTONI), A., i, 615.

Menthancarboxylic acid and its salts, synthesis of (ZELINSKY), A., i, 185.

Methane, 8-bromo- (PERKIN), T., 846.

β-Menthene, Δ^8 -hydroxylamino-, and its acyl and nitroso-compounds (MAHLA), A., i, 264.

Menthol, mechanism of the dehydration of, by organic acids (ZELIKOFF), A., i, 184.

derivatives of (KONDAKOFF and SCHINDELMEISER), A., i, 350.

Menthone, oxidation of (MARKOWNIKOFF), A., i, 843.

Menthoneisoxime, reduction of (WALLACH and JAGER), A., i, 104.

Methyl derivatives, molecular rotation of (TSCHUGAEFF), A., ii, 1.

l-Menthylamines, the four optically isomeric, and their salts (TUTIN and KIPPING), P., 289.

α-Mercaptodilactic acid (DE JONG), A., i, 146.

Mercaptogalactoxazoline (ROUX), A., i, 73.

2-Mercaptoquinazoline (GABRIEL), A., i, 445.

Mercury, new method of determining the density of the vapour of (JEWETT), A., ii, 61.

influence of pressure and temperature on the coefficient of compressibility of (CARNAZZI), A., ii, 714.

latent heat of evaporation of (KURBATOFF), A., ii, 130.

hydrosol of (GUTBIER), A., ii, 82.

action of persulphates on (TARUGI), A., ii, 481.

removal of, from saccharine liquors after treatment with mercuric nitrate (PATEIN), A., ii, 338.

cause of the loss of, in the decomposition of organic substances by Fresenius and Babo's method, and in the purification of mercury sulphide (PIERPAOLI), A., ii, 106.

cathode in electrochemical analysis (SMITH), A., ii, 755.

Mercur ammonium salts, decomposition of, by heat (SEN), A., ii, 148.

Dimercur ammonium nitrate (RÂY), A., ii, 148.

Mercury alloys (amalgams) (PUSHIN), A., ii, 212.

Mercury alloys with cadmium, nature of, and their electromotive behaviour (BIJL), A., ii, 6; (JAEGER), A., ii, 258.
 with sodium, electrolytic preparation of (SHEPHERD), A., ii, 210.
 with tin (ROOZEBOOM and VAN HETE-REN), A., ii, 216.
 melting points of (VAN LAAR), A., ii, 266.

Mercury chloronitroiridium compound (MIOLATI and GIALDINI), A., ii, 25.
 halogen compounds, formation of complexes and some physico-chemical constants for (SHERRILL), A., ii, 534, 649.
 dissociation of (MORSE), A., ii, 12.
 nitrogen compounds (LEY and SCHAEFFER), A., ii, 279; (FÜRTH), A., ii, 294.

Mercury oxybromides and oxybromate (FISCHER and v. WARTENBURG), A., ii, 79.

Mercuric chloride, reaction between, and phosphorous acid (MONTE-MARTINI and EGIDI), A., ii, 65.
 reaction between potassium iodide and, and its analytical application (DE KONINCK and LEBRUN), A., ii, 42.
 and iodide, mixed crystals of (PADOA and TIBALDI), A., ii, 728.
 and water (STRÖMHOLM), A., ii, 547.
 test for, in surgical dressings (FRERICHS), A., ii, 335.
 caesium double chlorides and their solubility (FOOTE), A., ii, 728.
 iodide, the form in which, dissolves (GERNEZ), A., ii, 481.
 mixed crystals of silver iodide and (STEGER), A., ii, 482.
 double salts of, with ammonium and with rubidium bromides (GROSSMANN), A., ii, 476.
 red, combination of, with acetone by rise of temperature (GERNEZ), A., ii, 598.
 iodides, change of colour shown by, at different temperatures (GERNEZ), A., ii, 428.
 oxychlorides (SCHOCH), A., ii, 428.
 oxides, red and yellow (SCHOCH), A., ii, 428.
 solubility and dissociation of (SCHICK), A., ii, 147.

Mercurous salts, and mixtures of mercurous and mercuric salts, volumetric estimation of (RUPP), A., ii, 759.

Mercury:—

Mercurous nitrite, decomposition of, by heat (RÄY and SEN), T., 491; P., 78.
 sulphide (BASKERVILLE), A., ii, 729.

Mercury organic compounds:—

Mercuric cyanide, double salt of, with sodium cyanide (GROSSMANN), A., ii, 476.
 estimation of, iodometrically (RUPP), A., ii, 696.

Mercuribenzoic acid, o-chloro-, salts of (PESCI), A., i, 220.

o-Mercuridibenzoic acid, salts (PESCI), A., i, 220.

Mercuriochloroacetamide (FRANCESCONI and DE PLATO), A., i, 798.

Mercurisalicylic acid, chloro-, bromo-, hydroxy- and iodo- (BURONI), A., i, 392.

Mercury, detection of, in cheese and flesh from animals which have been inoculated against rinderpest (OTTELLI), A., ii, 183.

detection of, in urine (OPPENHEIM), A., ii, 696.

estimation of (PRETZFELD), A., ii, 335.

estimation of, electrolytically (GLASER), A., ii, 242.

estimation of, gravimetrically and volumetrically (LITTERSCHEID), A., ii, 615.

estimation of, volumetrically (ANDREWS), A., ii, 695.

technical estimation of, in poor cinabarin ores by Personne's method (MONTANARI), A., ii, 759.

clinical method for the estimation of, in urine (SCHUMACHER and JUNG), A., ii, 44.

Mesitylaldoximes (SCHOLL and KAČER), A., i, 255.

Mesoporphyrin (SIEBER-SCHUMOFF; ZALESKI), A., i, 375.
 and its ethers and salts (ZALESKI), A., i, 217.

Mesotan (*methoxymethyl salicylate*) (EICHENGRÜN), A., i, 195.

Mesotartaric acid, inactivity of (MARCHLEWSKI), A., i, 148.

Mesoxalic acid, compounds of, with guanidine (KAESS and GRUSZIEWICZ), A., i, 6.

Mesoxalic acid, esters, formation of, from isonitrosomalonic esters (BOUVEAULT and WAHL), A., i, 677.

Mesoxamide, oxime of, mono- and di-substituted derivatives of (WHITELEY), T., 24.

Metabolism of matter and energy in the human body (ATWATER, BENEDICT, BRYANT, SMITH, and SNELL), A., ii, 308.
 in inanition in insects (SLOWTZOFF), A., ii, 495.
 of nitrogen, effect of muscular activity on the (WAIT), A., ii, 308.
 anaerobic, of higher plants, and its relation to alcoholic fermentation (STOKLASA, JELINEK, and VITEK), A., ii, 388.
 carbohydrate, intermediate (MAYER), A., ii, 495.
 inorganic, in horses (TANGL), A., ii, 161.
 nuclein, in lymphatic leucæmia (HENDERSON and EDWARDS), A., ii, 671.
 protein, influence of alcohol on (ROSEMANN), A., ii, 384.

Metacetaldehyde. See Acetaldehyde.

Metaformaldehyde. See Trioxymethylene.

Metal-ammonia hydroxides (BONSDORFF), A., ii, 598.

Metallic chlorides, determination of the molecular weight of (RUGHEIMER), A., ii, 725.
 compounds of, with ethyl acetacetate, acetylacetone, and benzoylacetone (ROSENHEIM, LOEWENSTAMM, and SINGER), A., i, 603.
 condition, nature of the (ERDMANN), A., ii, 67.
 haloids, reduction of, by hydrogen ; influence of pressure (JOUNIAUX), A., ii, 413.
 compounds of, with pyridine and quinoline (RENZ), A., i, 774.
 hydroxides, colloidal (BILTZ), A., ii, 153.
 dialysis experiments with (HERZ), A., ii, 62.
 nitrates, absorption spectra of (HARTLEY), T., 221.
 nitrides, formation of (GUNTZ), A., ii, 79.
 nitrites (VOGEL), A., ii, 591.
 oxides, formation of (COEHN and GLÄSER), A., ii, 80 ; (COEHN and OSAKA), A., ii, 261.
 heat and light radiations of certain (FÉRY), A., ii, 124.
 and sulphides, electrical conductivity of compressed (STREINTZ), A., ii, 127.
 reducibility of, by hydrogen and carbon monoxide (FAY and SEEKER), A., ii, 597.

Metallic oxides, reduction of, in a current of hydrogen (GLASER), A., ii, 646.
 action of ammonium persulphate on (SEYEWEZT and TRAWITZ), A., ii, 591.
 behaviour of, towards fused boric anhydride (BURGESS and HOLT), P., 221.
 insoluble, hydrolytic power of, towards organic haloids (SWARTS), A., i, 725.
 plates, thin, decarburisation of, by evaporation under reduced pressure (BELLOC), A., ii, 484.
 radicles, replacement of organic radicles by, in tautomeric compounds, nature and probable mechanism of the (LANDER), T., 414 ; P., 47.
 salts, migration experiments to determine the constitution of (KREMANN) A., ii, 54 ; (BREDIG), A., ii, 263.
 with oxidisable anions and cathions, stability of (ABEGG), A., ii, 628.
 dissolved in liquefied gases, conductivity of (STEELE and MCINTOSH), P., 220.
 conductivity of, in certain fatty alcoholic solvents, and in mixtures of these solvents (JONES and LINDSAY), A., ii, 55 ; (JONES and MURRAY), A., ii, 637.
 electrolysis of mixtures of (LEDUC), A., ii, 6.
 fused, molecular formulae of, as determined by their molecular surface energy (BOTTOMLEY), T., 1421 ; P., 272.
 certain regularities in the molecular volumes of, in aqueous solution (FORCH), A., ii, 714.
 freezing points of, and freezing point curves of pairs of (RUFF and PLATO), A., ii, 588.
 influence of, on solubility (BILTZ), A., ii, 358.
 basic, identification of (MILLER and KENRICK), A., ii, 473.
 of heavy metals, dissociation of (LEY and SCHAEFER), A., ii, 279.
 hydrated, peculiar property of some (DE SCHULTEN), A., ii, 647.
 action of metallic magnesium on solutions of (KAHLENBERG), A., ii, 426 ; (ROBERTS and BROWN), A., ii, 726.
 action of a metallic oxide or hydroxide on solutions of (MAILHE), A., ii, 142.

Metallic salts, action of certain, on the growth of micro-organisms (NABARRO), A., ii, 387.
 action of, on some moulds (PULST), A., ii, 746.
 action of sodium hyposulphite on (BRUNCK), A., ii, 481.
 univalent, thiocarbamide derivatives of (ROSENHEIM and LOEWENSTAMM), A., i, 325.
 influence of, on the acidity of plants (CHARABOT and HÉBERT), A., ii, 505.
 influence of, on the formation and evolution of terpene compounds in plants (CHARABOT and HÉBERT), A., ii, 607.
 solutions, colloidal, preparation of (HENRICH), A., ii, 299; (GARBOWSKI), A., ii, 432.
 substitution (VAN DE VELDE and WASTEELS), A., ii, 200.
 thiocyanates, action of, on carbonyl chloride (DIXON), T., 84.
 vapours, new method of determining the vapour density of (JEWETT), A., ii, 61.
Metals, quantitative deposition of, by electrolysis (DENSO), A., ii, 575.
 spectra of, in the electric arc (HASSELBERG), A., ii, 706.
 radioactivity of (MCLENNAN and BURTON), A., ii, 621.
 relation between reflective power and electrical conductivity of (HAGEN and RUBENS), A., ii, 348.
 specific heat of, and its relation to atomic weight (TILDEN), A., ii, 265.
 specific heat of, especially at low temperatures (SCHMITZ), A., ii, 632.
 evaporation and boiling of, in quartz-glass and in the electric oven in the vacuum of the cathode light (KRAFFT), A., ii, 479.
 velocity of solution of (ERICSON-AURÉN and PALMAER), A., ii, 718.
 action of, at high temperature, on fatty acids (HÉBERT), A., i, 396.
 action of solutions of bleaching powder and of hypochlorous acid on (WHITE), A., ii, 296.
 action of solutions of hydrochloric acid on, in various solvents (PATTEN), A., ii, 417.
 colloidal, catalytic decomposition of hydrogen peroxide by (LOEVENHART and KASTLE), A., i, 415; (BÖCK), A., ii, 416; (KASTLE and LOEVENHART), A., ii, 587.

Metals, finely divided, transformation of aldehydes and ketones into alcohols by (SABATIER and SENDREN), A., i, 733.
 action of, in the decomposition of alcohols (SABATIER and SENDREN), A., i, 393, 453, 454.
 heavy, thiocarbonates of (HOFMANN and HÖCHTLEN), A., ii, 428.
 titration of, with iodine acid (RUPP), A., ii, 755.
 electrolytic precipitation of (EXNER), A., ii, 756.
 use of a rotating cathode in the electrolytic estimation of (GOOCH and MEDWAY), A., ii, 613.
 electrolytic separation of (SMITH), A., ii, 756.
 influence of the nature of the cathode on the quantitative electrolytic separation of (HOLLARD), A., ii, 391.
 application of the theory of galvanic cells to the quantitative separation of (HOLLARD), A., ii, 335.
Metaphosphoric acid. See under Phosphorus.
Metasaccharin, preparation and oxidation of (KILIANI and NAEGELL), A., i, 10.
Metasaccharinic acid and its lactone and calcium salt (KILIANI and NAEGELL), A., i, 10.
Metasaccharopentose and its phenylhydrazone (KILIANI and NAEGELL), A., i, 10.
Meteoric iron from Augusta Co., Virginia (CAMPBELL and HOWE), A., ii, 558.
 from Cuernavaca, Mexico (COHEN), A., ii, 491.
 from Iredell, Texas (COHEN), A., ii, 491.
 from Mukerop, Great Namaqualand (BREZINA and COHEN), A., ii, 492.
 from Rafritti, Switzerland (COHEN), A., ii, 491.
Meteorite from Reed City, Michigan (PRESTON), A., ii, 492.
 from the Saline Township, free phosphorus in the (FARRINGTON), A., ii, 304.
Meteorites from Boogaldi, Barratta, Gilgoen, and Eli Elwah, N. S. W. (LIVERSIDGE), A., ii, 658.
Methane, combustion of hydrogen and, by Winkler's method (CHARITSCHKOFF), A., ii, 186.
 slow oxidation of, at low temperatures (BONE and WHEELER), T., 1074; P., 191.
Methane, nitro-, action of, on phthalic anhydride (GABRIEL), A., i, 345.

Methane, tetranitro- (PICTET and GENEQUAND), A., i, 305, 596.

Methenylbisindandione (ERRERA), A., i, 266, 854.

1-Metho-1'-butenylbenzene. See β -Phenyl- β -amylene.

1-Metho-1'-propenylbenzene. See β -Phenyl- β -butylene.

2-*o*- and *p*-Methoxyanilinopyridines, and additive salts of the para-compound (FISCHER and MERL), A., i, 52.

4-Methoxyazobenzene, 3:5-dibromo- (JACKSON and FISKE), A., i, 689.

***p*-Methoxybenzamarone** (KLAGES and TETZNER), A., i, 101.

4-Methoxybenzenecarboxylic acids, 2:3- and 3:5-dihydroxy-, and their methyl esters (HERZIG and POLLAK), A., i, 89.

4-Methoxybenzophenone, 2-amino- (ULLMANN and BLEIER), A., i, 176.

Methoxybenzylideneanilines, *o*-, *m*-, and *p*-, and their behaviour with methyl iodide (FREUND and BECKER), A., i, 563.

***p*-Methoxybenzylidenedeoxybenzoins**, α - and β -, and the oxime of the α -compound (KLAGES and TETZNER), A., i, 101.

***p*-Methoxybenzylidenephenoxyacetone** and its oxime, phenylhydrazone, and semicarbazone (STOERMER and WEHLEN), A., i, 40.

5-*p*-Methoxybenzylidene-rhodanic and -3-allylrhodanic acids (ANDREASCH and ZIPSER), A., i, 856.

4-*p*-Methoxybenzylisoquinoline and its platinichloride (RÜGHEIMER and ALBRECHT), A., i, 439.

methiodide (RÜGHEIMER and SCHAU-MANN), A., i, 439.

***p*-Methoxy- α -chlorobenzyldeoxybenzoin** (KLAGES and TETZNER), A., i, 101.

***p*-Methoxycinnamaldehyde** and its phenylhydrazone and semicarbazone (SCHOLTZ and WIEDEMANN), A., i, 437.

Methoxydihydro- β -camphrylic acid (PERKIN), T., 844, 869.

6-Methoxydihydroquinidine-5-aldehyde, 7-hydroxy-, and its salts (BOOK), A., i, 654.

4-Methoxy-2,6-dimethylphenol (BAM-BERGER), A., i, 624.

Methoxydiphenyl sulphide (HINSBERG), A., i, 251.

2-Methoxydiphenylamine, dichloro-2':4'-dinitro- (REVERDIN and CRÉPIEUX), A., i, 858.

6-Methoxy-1-ethyl-2-quinolone and its salts (DECKER and ENGLER), A., i, 518.

3-Methoxyfluorenone (ULLMANN and BLEIER), A., i, 176.

6-Methoxy-di- and -tetra-hydroquinalidine-5-carboxylic acids, 4:7-dihydroxy-, and their salts (BOOK), A., i, 653.

6-Methoxy-5-hydroxymethyldihydro-quinalidine, 7-hydroxy-, and its aurichloride (BOOK), A., i, 654.

Methoxyindiazoneoxime, hydroxy- (SUMULEANU), A., i, 635.

3-Methoxy-5-keto-1-phenyl-4:5-dihydro-triazole and its 4-methyl derivative (ACREE), A., i, 867.

Methoxyl, simplification of Zeisel's method of estimating (PERKIN), T., 1367; P., 239.

Methoxymethylindole (LEONARDI and DE FRANCHIS), A., i, 787.

8-Methoxy-1-methylquinoline (FISCHER, BERCKHEMER, and ULRICH), A., i, 53.

6-Methoxy-1-methylquinolone and 5-bromo- (HOWITZ and BÄRLOCHER), A., i, 279.

Methoxymethylthioldiphenylthiodiazoline (BUSCH, KAMPHAUSEN, and SCHNEIDER), A., i, 532.

Methoxymethylthiophenyl-*p*-tolylthiodiazoline (BUSCH and BLUME), A., i, 535.

2-Methoxy- α -naphthoic acid (BODROUX), A., i, 420.

2-Methoxy- α -naphthylideneacetylacetone (HELBRONNER), A., i, 764.

α -Methoxy- α -nitromethylphthalide (GABRIEL), A., i, 345.

3-Methoxyphenanthrene, 4-hydroxy-(methylmorphol) and its **9-carboxylic acid** (PSCHORR and VOGTHERR), A., i, 183.

5-Methoxyphenol hydrochloride, 4-amino-3-hydroxy-, and its tetra-acetyl derivative (POLLAK and GANS), A., i, 252.

m*-Methoxy- β -phenoxy-*cinnamic acid, and its ethyl ester (RUHEMANN), T., 1134; P., 202.

***m*-Methoxyphenoxyfumaric acid**, ethyl ester (RUHEMANN), T., 1132; P., 202.

***m*-Methoxyphenoxystyrene** (RUHE-MANN), T., 1134; P., 202.

***p*-Methoxyphenylacetylene** (KUNCKELL and ERAS), A., i, 413.

β -Methoxy- β -phenylacrylic acid, α -cyano-, methyl ester (SCHMITT), A., i, 399.

***p*-Methoxyphenyl-2-amino- and -2-nitro-3:4-dimethoxycinnamic acids** and their salts (PSCHORR, SEYDEL, and STÖHRER), A., i, 167.

p-**Methoxyphenyl-2-amino-3-hydroxy-4-methoxycinnamic acid** (PSCHORR, SEYDEL, and STÖHRER), A., i, 167.

p-**Methoxyphenylchloroacetylene** (KUNCKELL and ERAS), A., i, 413.

α-p-**Methoxyphenyl-3-diazo-2-oxy-4-methoxycinnamic acid** (PSCHORR, SEYDEL, and STÖHRER), A., i, 168.

3-p-Methoxyphenyl-7:8-dimethoxy-2-carbostyryl (PSCHORR, SEYDEL, and STÖHRER), A., i, 167.

α-**Methoxyphenylethane**, nitro- and bromonitro-derivatives of (THIELE and HAECKEL), A., i, 160.

o-**Methoxyphenylglycinyl ethyl urethane** (FRERICHS and BREUSTEDT), A., i, 18.

β-p-**Methoxyphenylhydantoin** (FRERICHS and BREUSTEDT), A., i, 18.

p-**Methoxyphenyl-2-nitro-3-acetoxy-4-methoxycinnamic acid** (PSCHORR, SEYDEL, and STÖHRER), A., i, 167.

5-Methoxyphenyl-3-phenylpyrazole (MOUREU and BRACHIN), A., i, 581.

p-**Methoxyphenyl-phthalamic acid, -phthalimide, -hydrophthalamic acid, and -hydrophthalimide** (PIUTTI and ABATTI), A., i, 424.

Methoxypropenylbenzene, bromo-derivatives of (HELL and BAUER), A., i, 479.

6-Methoxy-2-propyl-quinol and -quinone (THOMS), A., i, 415, 558.

Methoxypyrimidine, dichloro- (BÜTTNER), A., i, 659.

6-Methoxyquinaldine-5-carboxylic acid, 7-hydroxy- (BOOK), A., i, 653.

5-Methoxyquinol, 3-hydroxy-, triacetate of (POLLAK and GANS), A., i, 252.

6-Methoxyquinoline ethiodide (DECKER and ENGLER), A., i, 518.

6-Methoxyquinoline, 5-bromo-, and its methiodide (HOWITZ and BÄRLOCHER), A., i, 279.

8-Methoxyquinoline, 2-amino- and 2-chloro-, and their salts (FISCHER, BERCKHEMER, and ULRICH), A., i, 53.

5-amino-, and its acetyl derivative, and 5-nitro- (FREYSS and PAIRA), A., i, 198.

2-thiol-, and its mercurichloride (FISCHER, BERCKHEMER, and ULRICH), A., i, 53.

5-Methoxy-p-quinone, 3-hydroxy-, and its acetate, and its 4-oxime and its salts (POLLAK and GANS), A., i, 252.

α-**Methoxystyrene** (MOUREU), A., i, 699.

3-Methoxytoluene, 2-amino- and 2- and 6-nitro-5-hydroxy- (HENRICH and NACHTIGALL), A., i, 414.

3-Methoxytolu-quinol and -quinone (HENRICH and NACHTIGALL), A., i, 415.

Methoxytricarballylic acid (*methyl* *locitic acid*) and its methyl ester and silver salt (ANSCHÜTZ), A., i, 550.

p-Methoxytriphenylchloromethane (BISTRZYCKI and HERBST), A., i, 639.

Methyl alcohol, formation of formaldehyde from (GLAESSNER), A., i, 8.

critical curve of mixtures of ethane and (KUENEN), A., ii, 410.

detection of, in absinths (SANGLÉ-FERRIÈRE and CUNIASSE), A., ii, 393.

estimation of, in presence of ethyl alcohol (THORPE and HOLMES), P., 285.

Methyl alkyl ethers, chloro-, preparation and properties of (WEDEKIND), A., i, 137.

tert.-butyl ether (LAZINSKY and SWADKOWSKY), A., i, 394.

chlorocarbonate, action of, on thiocarbamides (DIXON), T., 550; P., 104.

iminodithiocarbonate hydriodide (DELÉPINE), A., i, 237.

molbydate (ROSENHEIM and BERTHEIM), A., i, 374.

*d**nitroethyl* ether and its potassium salt and bromo-derivative (MEISENHEIMER), A., i, 223.

n-octyl ether (BOUVEAULT and BLANC), A., i, 598.

sulphate as an alkylating agent (ULLMANN), A., i, 394.

dithiocarbonate, dialkylsemicarbazones of (BUSCH and FREY), A., i, 537.

Methylacetylacetone, condensation product of, with resorcinol (BÜLOW), A., i, 272.

Methylacrylic acid and its anilide and dibromide (AUTENRIETH and PRETZELL), A., i, 475.

action of nitrogen peroxide on (EGOROFF), A., i, 790.

α-**Methyladipic acid** (*pentanedicarboxylic acid*), preparation of (PRJEWALSKY), A., i, 728.

β-**Methyladipic acid** (*pentanedicarboxylic acid*) and its esters, salts, and anilides (MARKOWNIKOFF), A., i, 844.

β-hydroxy-, lactone of, ethyl ester (DUDEN and FREYDAG), A., i, 400.

Methylallyladipic acid (*octylenedicarboxylic acid*), $\beta\delta$ - or $\delta\alpha$, and its esters (HALLER and DESFONTAINES), A., i, 628.

p-Methylallylbenzene (KUNCKELL), A., i, 617.

4-Methyl-1-allyl- and -1-n-propyl-2-cyclopentanone-2-carboxylic acids, ethyl esters (HALLER and DESFON-TAINES), A., i, 628.

Methylamine, action of cyanogen chloride on (KAESS and GRUSZKIEWICZ), A., i, 11.

oxidation of (BAMBERGER and SELIGMAN), A., i, 152.

action of, on chromic chloride (LANG and JOLLIFFE), P., 147.

N-benzoyl derivative, N-chloro- (SLOSSON), A., i, 476.

o-Methylaminobenzophenone (ULLMANN and BLEIER), A., i, 176.

4'-Methylamino-2:4-dihydroxydiphenylmethane (FRIEDLÄNDER and v. HORVATH), A., i, 253.

Methylaminofluoran, chloro- (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 510.

1-Methylamino- Δ^4 -cycloheptene-3-ol and its isomeride (WILLSTÄTTER), A., i, 360.

2-Methylamino-8-methoxyquinoline and its nitrosoamine (FISCHER, BERCKHEMER, and ULRICH), A., i, 53.

N-Methyl-o-aminophenol, N-acetyl derivative of (LEES and SHEDDEN), T., 756 ; P., 132.

p-Methylaminophenyl-2:3- and -2:7-dihydroxynaphthylmethanes (FRIEDLÄNDER and v. HORVATH), A., i, 253.

p-Methylaminophenyl- α - and - β -hydroxynaphthylmethanes (FRIEDLÄNDER and v. HORVATH), A., i, 253.

3-Methylaminophenylmethylnitro-amine, 4-bromo-2:6-dinitro- (BLANKSMA), A., i, 333.

3-Methylaminotoluene, 2:4:6-trinitro-, and its nitroamine (BLANKSMA), A., i, 164.

5-Methylamino-m-xylene, 2:4:6-trinitro-, and its nitroamine (BLANKSMA), A., i, 164.

Methylammonium magnesium arsenate (BRISAC), A., i, 606.

phosphate (PORCHER and BRISAC), A., i, 607.

Methylamyleneglyoxaline (JOWETT), T., 449 ; P., 55.

Methylisoamylglycollic acid (GRIGNARD), A., i, 31.

Methylamylglyoxaline, 1:4- or 1:5-, and its salts (JOWETT), T., 447 ; P., 55.

α -Methylhydracetonebenzil, dimorphism of (JAPP and MICHIE), T., 276 ; P., 20.

Methylanhydracetonebenzils, α - and β -, oxidation products of (JAPP and MICHIE), T., 279 ; P., 21.

Methylaniline, latent heat of vaporisation of (LUGININ), A., ii, 7.

condensation of, with acetaldehyde-cyanohydrin (SACHS and KRAFT), A., i, 335.

action of formaldehyde on (GOLD-SCHMIDT), A., i, 82.

Methylaniline, bromonitro-derivatives of (BLANKSMA), A., i, 333.

3:4-dichloro-6-nitro- (BLANKSMA), A., i, 334.

ω -cyano-, preparation of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 336.

1-Methylanilino-5-methyltriazole-4-carboxylic acid, and its ethyl ester (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 206.

α -Methylanilinopropionamide, *p*-nitroso-, and its condensation with benzyl cyanide, *p*-nitrobenzyl cyanide, and malononitrile (SACHS and KRAFT), A., i, 335.

α -Methylanilinopropionitrile and *p*-nitroso- (SACHS and KRAFT), A., i, 335.

Methylanisyl-*o*-diketone, mono- and 1:2-di-oximes of (WIELAND), A., i, 837.

Methylantranil and its dichloride and salts and chloro-derivative (CAMP), A., i, 33 ; (BAMBERGER and ELGER), A., i, 561.

Methylantranilic acid, methyl ester, from the leaves of *Citrus madurensis* (CHARABOT), A., i, 47.

Methylantranilic acid, ω -cyano- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 336.

1-Methylanthraquinone, 5:8-dihydroxy-. See Chrysophanic acid.

2:5:8- (or 3:5:8-)trihydroxy-. See Emodin.

β -Methylanthraquinone, bromoamino- and chloroamino-derivatives of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 498.

Methylapomorphine and its acetyl and benzoyl derivatives and their salts (PSCHORR, JAECHEL, and FECHT), A., i, 194.

Methylarsinic acid and its salts (*D'EMILIO*), A., ii, 252.

compounds of, with ferric hydroxide (LEPRINCE), A., i, 329.

Methylatropic acid, ethyl ester (DIMROTH and FEUCHTER), A., i, 631.

Methylauramine and its salts and iodides (ZOHLEN), A., i, 119.

5-Methylaziminolecarboxylic acid and its ethyl ester (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 207.

4-p-Methylbenzeneazo-1-phenyl-3-methyl-5-pyrazolone (LAPWORTH), T., 1124; P., 149.

2-Methylbenziminoazole, bromo-derivatives, and their salts (BACZYŃSKI and v. NIEMENTOWSKI), A., i, 124.

4:6-di- and tetra-bromo-, phthalones of (BACZYŃSKI and v. NIEMENTOWSKI), A., i, 126.

N-Methylbenzimino-ethers (LANDER), T., 324; P., 16.

Methylbenzoquinonitrole, chloro-derivatives of (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 757.

1-Methylbenzoxazole, 5-hydroxy- (HENRICH and WAGNER), A., i, 89.

p-Methylbenzylidene chloride (AUWERS and KEIL), A., i, 621.

p-Methylbenzylideneoxybenzoins, isomeric, and their phenylhydrazone (KLAGES and TETZNER), A., i, 100.

p-Methylbenzylidene- α -lutidine. See 2-p-Methylstyryl-6-methylpyridine.

4-p-Methylbenzylisoquinoline and its salts (KÜGHEIMER and ALBRECHT), A., i, 439.

Methylbromocamphor (MINGUIN), A., i, 428.

B-Methylbutane. See Pentane.

Methylcyclobutane, ω -amino-, action of nitrous acid on (DEMJANOFF and LUSCHNIKOFF), A., i, 403.

1-Methyl-4- α -butenylbenzene (KUNKELL), A., i, 617.

β -Methyl- β^{β} -butylene. See Amylene.

Methylisobutylketone (isopropylacetone), its polymeride and semicarbazone (GRIGNARD), A., i, 141.

Methylbutyrylacetoacetic acid, esters (BOUVEAULT and BONGERT), A., i, 145.

Methylbutyrylacetone and its copper derivative (BOUVEAULT and BONGERT), A., i, 142.

β -Methylbutyrylcarbamide (GEBRÜDER VON NIESSEN), A., i, 798.

β -Methylbutyrylphenyl-hydrazide and -methylhydrazide (SCHWARZ), A., i, 853.

Methylcamphocarboxylic acid and its esters and their sodium salts (BRÜHL), A., i, 6.

Methylcamphor, bromo- (MINGUIN), A., i, 428.

Methylchitoside (NEUBERG and NEIMANN), A., i, 74.

p-Methyl- α -chlorobenzyldeoxybenzoins (KLAGES and TETZNER), A., i, 100.

Methylchloroisopropylketoxime (SCHMIDT and AUSTIN), A., i, 3.

2-Methylchroman (STOERMER and SCHÄFFER), A., i, 848.

2-Methylchromone, 7:8-dihydroxy-, and its diacetyl derivative (BLUMBERG and v. KOSTANECKI), A., i, 645.

p-Methylcinnamaldehyde and its oxime, phenylhydrazone, and semicarbazone (SCHOLTZ and WIEDEMANN), A., i, 437.

4-Methylcoumaran (STOERMER and GÖHL), A., i, 848.

1-Methylcoumaranone (STOERMER and ATENSTÄDT), A., i, 42.

Methyl- α -cyanoethylaniline. See α -Methylanilinopropionitrile.

Methylcyanoisopropylketoxime and its benzoyl derivative (SCHMIDT and AUSTIN), A., i, 2.

2-Methyldihydroquinazoline and its picrate (GABRIEL), A., i, 446.

1-Methyl-1:2-dihydroquinoline, 3-chloro-5-nitro-2-hydroxy- (DECKER), A., i, 516.

α -Methyldihyrosorbic acid (*heptenoic acid*), β -hydroxy-, and its ethyl ester and salts, synthesis of (JAWORSKY and REFORMATSKY), A., i, 4; (JAWORSKY), A., i, 729.

6-Methyl-1:6-dihydro-1:2:4-triazine, 3:5-dihydroxy-, and its 1-benzoyl derivative (BAILEY), A., i, 130.

Methyldihydrourouracil, trihydroxy- (BEHREND and FRICKE), A., i, 740.

γ -Methyl- $\beta\beta$ -dimethylol- α -butanol and its triacetate and tribenzoate (VAN MARLE and TOLLENS), A., i, 460.

Methyl-2':4'-diphenylaminesulphonic acids, sodium salts and amides (REVERDIN and CRÉPIEUX), A., i, 248.

α -Methyl- α ' β -diphenyl- α ' β -dihydroxy-glutaric acid. See $\alpha\beta$ -Diphenyl- α -methylglutaric acid, $\alpha\beta$ -dihydroxy-.

Methyleneaminoacetonitrile (KLAGES), A., i, 469.

Methylene bases, action of cyanogen bromide on (v. BRAUN and RÖVER), A., i, 464.

Methylenebenzoquinone, tetrachloro- (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 757.

Methylenebisacetylacetone (KNOEVENAGEL), A., i, 638.

Methylenebis-3:5-dimethylisooxazole (KNOEVENAGEL), A., i, 639.

3-Methylenebis-4-hydroxycoumarin (ANSCHÜTZ), A., i, 271.

Methylenecamphor (MINGUIN), A., i, 428.

Methylene-p-chlorobenzylcyanide, hydroxy- (v. WALTHER and HIRSCHBERG), A., i, 495.

Methylene compounds ($R.CO.O)_2CH_2$, reactions of (DESCUDÉ), A., i, 168.

Methylenedi-*p*-aminobenzoic acid (BISCHOFF and REINFELD), A., i, 248.

Methylenedi-*o*-anisidine (BISCHOFF and REINFELD), A., i, 248.

Methylenedi-chloroanilines and -*m*-toluidine (BISCHOFF and REINFELD), A., i, 247.

Methylenedimethylsuccinic acid and anhydride (BONE and HENSTOCK), T., 1388; P., 248.

diethyl ester, magnetic rotation and refraction of (PERKIN), T., 1389; P., 248.

5-Methylenedioxybenzylidene-diphenylthiohydantoin, -rhodanic acid, and -3-allylrhodanic acid (ANDREASCH and ZIPSER), A., i, 856.

Methylene-3:4-dioxyformazylbenzene and its *p*-sulphonic acid, potassium salt (FICHTER and FROHLICH), A., i, 723.

Methylene-3:4-dioxyphenyl- α -benzotriazine (FICHTER and FROHLICH), A., i, 723.

Methylenedioxy-4':4"-tetramethyl-di-aminotriphenylmethane and 2':2"-hydroxy- (LIEBERMANN), A., i, 860.

Methylenediphenylglycinetetracarboxylic acid and its esters (HELLER and MICHEL), A., i, 834.

Methylenediurethane (CONRAD and HOCK), A., i, 607.

Methylene group, new synthesis effected by molecules containing a, attached to two negative radicles (HALLER and MARCH), A., i, 318, 714.

5-Methylenehexahydopyrimidine-4:6-dicarboxylamide and its additive metallic salts, and the action of bromine and of nitrous acid on it (ULPIANI and PANNAIN), A., i, 863.

Methylenehippuric acid, hydroxy-, ethyl sodium salt (ERLENMEYER), A., i, 29.

Methyleneindandione, amino- (ERRERA), A., i, 266.

amino-, and hydroxy- and its metallic derivatives (ERRERA), A., i, 854.

Methyleneindigotin and its sulphonic acid, and leuco-derivative and its acyl compounds (HELLER and MICHEL), A., i, 835.

Methyleneisatin (HELLER and MICHEL), A., i, 835.

Methylene-mono- and -di- β -naphthylamines (MOHLAU and HAASE), A., i, 127.

Methylenephenoxyphenylhydrazonecarboxylic acid, ω -mono- and $\omega\beta$ -di-bromo- and ω -bromo- ρ -chloro-, menthyl esters (LAPWORTH), T., 1126; P., 150.

Methylenephthalide, nitro- (GABRIEL), A., i, 845.

Methylene-*p*-tolylphenylhydrazonecarboxylic acid, bromo-, methyl ester (LAPWORTH), T., 1128; P., 150.

Methylenetrihydrofuranoxime and its compound with hydrogen chloride (SCHEMA), A., i, 509.

Methylethenylbenzene dibromide. See *iso* Propylbenzene, $\alpha\beta$ -dibromo-.

Methylethylacraldehyde, action of alcoholic potash on (V. LENZ), A., i, 460.

N-Methylethyl- α -amino- β -naphthol and its hydrioxide, sulphocamphylate, and acetyl derivative (LEES and SHEDDEN), T., 761; P., 133.

N-Methylethyl- α -aminophenol hydrochloride (LEES and SHEDDEN), T., 753; P., 132.

Methylethylaziethane (DIELS and VON DORP), A., i, 862.

CC-Methylethylbarbituric acid (GEBRÜDER VON NIESSEN), A., i, 799.

p -Methylethylbenzene, and ω -dichloro- and nitro-derivatives (AUWERS and KEIL), A., i, 621.

Methyl ethyl ketone, action of hydrogen sulphide on (LEFEUR), A., i, 605.

condensation of, with hypophosphorous acid (MARIE), A., i, 328.

4-Methyl-5-ethylpyrimidine, amino-, 2-amino-6-hydroxy-, aminothio-, chloro-, chloroamino-, 2:6-dihydroxy-, and thio-derivatives of, and their salts (BYK), A., i, 657.

4-Methyl-5-ethyluracil (WHEELER and MERRIAM), A., i, 525.

Methylformazyl (BAMBERGER and PEMSEL), A., i, 282, 284.

Methylfructoside, methylation of (PURDIE and IRVINE), T., 1027; P., 193.

α -Methylglucoside from bioses (FOERG), A., i, 713.

methyl ethers of (PURDIE and IRVINE), T., 1023; P., 192; (PURDIE and BRIDGETT), T., 1037; P., 193.

Methyl-*d*-glucosides, mutual transformation of the two stereoisomeric (JUNGIUS), A., i, 733.

α -Methylglutaric acid (butanedicarboxylic acid), synthesis of (FRANKE and KOHN), A., i, 166.

1-Methylglyoxaline and its salts (JOWETT), T., 444; P., 54.

Methyl group, influence of the, on substitution in the benzene nucleus (BLANKSMA), A., i, 164.

migration of, under the influence of hydriodic acid (BLAISE), A., i, 316.

wandering of, in pyrazole derivatives (KNORR), A., i, 528.

attached to nitrogen, estimation of (GOLDSCHMIEDT and HONIGSCHMID), A., ii, 578.

ϵ -Methyl- α .heptinoic acid. See Octinoic acid.

Methylheptylcarbinol. See Nonyl alcohol.

Methyl heptyl ketone from German oil of rue (HOUBEN), A., i, 48.

condensation of (THOMS and MANNICH), A., i, 679.

condensation of, with aminoguanidine (THOMS and MANNICH), A., i, 673.

γ -Methylhexane- $\alpha\zeta$ -diol (BOUVIAULT and BLANC), A., i, 731.

β -Methylhexanone, oxidation of (MARKOWNIKOFF), A., i, 843.

2-Methylcyclohexanone, oxidation of (MARKOWNIKOFF), A., i, 836.

1-Methyl- $\Delta^{3,4}$ -cyclohexene and its chlorohydrin, oxide, and chloro-ketone (MARKOWNIKOFF and STADNIKOFF), A., i, 803.

Methylcyclohexenes (*heptanaphthalenes*) (MARKOWNIKOFF), A., i, 19, 157; (MARKOWNIKOFF and STADNIKOFF), A., i, 803.

γ -Methyl- ϵ -hexenoylelactic acid, ethyl ester (MOUREU and DELANGE), A., i, 400.

Methyl hexyl ketone and its oxime and semicarbazone (MOUREU and DELANGE), A., i, 400.

Methylhexylketoxime (FULDA), A., i, 199.

N-Methylcyclohexyl-S-p-nitrobenzylthiourethane (v. BRAUN), A., i, 15.

p-Methylhippuric acid, ethyl ester and nitrile (KLAGES and HAACK), A., i, 560.

α -Methylhydantoin and bromo- (ANDREASCH), A., i, 157.

Methylhydantoins, isomerism of the (HARRIES and WEISS), A., i, 738.

Methylhydrindamine d-chlorocamphor-sulphonates, *d*- and *l*- (TATTERSALL), P., 288.

β -Methyl- α -hydrindamine and its platinichlorides and benzoyl derivatives (KIPPING and CLARKE), T., 913.

***Dl*-Methylhydrindamine**, resolution of (TATTERSALL), P., 287.

d-bromocamphorsulphonates, isomeric (TATTERSALL and KIPPING), T., 918; P., 145; (KIPPING), T., 937; P., 166.

***Dl-neo*-Methylhydrindamine** salts and benzoyl derivative (TATTERSALL and KIPPING), T., 920; P., 145.

β -Methyl- α -hydrindone and its oxime (KIPPING and CLARKE), T., 915.

2-Methyl-6-hydroxyethylpyridine (KOENIGS and HAPPE), A., i, 850.

Methyl hydroxyisopropyl ketone and its semicarbazone (SCHMIDT and AUSTIN), A., i, 2, 3.

Methylindigotins, *o*- and *p*-, synthesis of (SANDMEYER and CONZETTI), A., i, 486.

2-Methylindole (*methylketole*), condensation of, with aldehydes (FREUND and LEBACH), A., i, 278.

Methylindolesulphonic acids (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 516.

Methylisatin- α -o-, and -*p*-toluidides, *o*- and *p*- (SANDMEYER and CONZETTI), A., i, 487.

Methyllactoside and its hepta-acetyl derivatives (DITMAR), A., i, 151.

Methylmalonic acid (*isosuccinic acid*; *ethanedicarboxylic acid*), interaction of, with *o*-phenylenediamine (MEYER), A., i, 442.

Methylmalonic acid (*isosuccinic acid*; *ethanedicarboxylic acid*), ethyl ester, sodium derivative, condensation of, with ethyl citraconate (SVOBODA), A., i, 174.

Methylmesidine and nitroso- (ULLMANN), A., i, 395.

Methylmethoxyisopropylketoxime and its benzoyl derivative and phenylcarbamide (SCHMIDT and AUSTIN), A., i, 2, 3.

Methyl α -methylbutyl ketone (AHRENS and BLUMEL), A., i, 813.

Methylmorphol. See 3-Methoxyphenanthrene, 4-hydroxy-.

N-Methyl- β -naphthamorpholine and its sulphocamphylate and methiodide (LEES and SHEDDEN), T., 762; P., 133.

N-Methyl- β -naphthamorpholone, preparation and electrolytic reduction of (LEES and SHEDDEN), T., 758; P., 133.

Methylnaphthiminoazole. See Ethenyl-diaminonaphthalene.

Methyl nitroisobutyl ketone (*nitroisopropylacetone*) (HARRIES and FERRARI), A., i, 320.

Methyl β -nitrosoisobutyl ketones, isomeric (HARRIES), A., i, 461.

γ -Methylnonalanol. See Decyl alcohol.

α -Methylnonoic acid. See Decoic acid.

β -Methylnonalcohol. See Decyl alcohol.

Methylnonylcarbinol. See Undecyl alcohol.

Methylnonylcarbinolpinacone (HOUBEN), A., i, 48.

Methyl nonyl ketone from German oil of rue (HOUBEN), A., i, 48.

condensation of (THOMS and MANNICH), A., i, 679.

condensation of, with aminoguanidine (THOMS and MANNICH), A., i, 673.

Methyl nonyl ketone, conversion of, into ethyl octyl ketone (MANNICH), A., i, 678.
transformation of (Houben), A., i, 48.

Methylocitric acid. See Methoxytricarballylic acid.

ζ -Methyl- ϵ -octene- α -inoic acid and its methyl ester (MOUREU and DELANGE), A., i, 313.

ζ -Methyl- α -octinoic acid. See Noninoic acid.

Methylolacetophenone and its acetyl derivative (VAN MARLE and TOLLENS), A., i, 493.

Methylolmethylenebisacetylacetone (KNOEVENAGEL), A., i, 638.

Methyl orange, behaviour of nitrous acid towards (LUNGE), A., ii, 575.

4-Methylcyclopentadiene and its 2-propionic acid (DUDEN and FREYDAG), A., i, 420.

β -Methylpentane. See Hexane.

δ -Methyl- $\Delta\gamma$ -pentene- $\Delta\alpha$ -inoic acid (MOUREU and DELANGE), A., i, 313.

γ -Methyl- α -pentinoic acid. See Hexinoic acid.

Methylphthalimidine hydroper-bromide and -iodide (WERNER), A., i, 235.

2-Methylisopheno-1:3:4-diazosulphonine (EKBOM), A., i, 411.

N-Methylphenomorpholine (LEES and SHEDDEN), T., 757; P., 132.

N-Methylphenomorpholone, electrolytic reduction of (LEES and SHEDDEN), T., 756; P., 132.

3-Methylpiperidine, synthesis of (FRANKE and KOHN), A., i, 153.

Methylcyclopropenedicarboxylic acid (PERKIN), T., 846.

9-Methyl-3-isopropenylidicyclononane-5-ol-7-one and its acetate (RABE), A., i, 268; (RABE and WEILINGER), A., i, 268, 269.

α -Methylpropionic acid. See Butyric acid.

α -Methyl- δ -isopropyladipic acid (*octane-dicarboxylic acid*), and its esters, chloride, and amides (MARTINE), A., i, 815.

1-Methyl-4-isopropyl-3-allybenzene (KUNCKELL), A., i, 617.

4-Methyl-7-isopropylhexamethylene-imine and its additive salts (WALLACH and JÄGER), A., i, 104.

3-Methyl-2-isopropylindole and its picrate (PLANCHER and BONAVIA), A., i, 434.

Methyl propyl ketone and its semicarbazone (BOUVEAULT and BONGERT), A., i, 142.

Methyl propyl ketone, phosphorus acid derivatives of (MARIE), A., i, 379.

Methyl isopropyl ketone, reduction of (BEAUME), A., i, 727.

Methylpropylisoazazole (BOUVEAULT and BONGERT), A., i, 142.

3-Methyl-5-propylpyrazole and its benzoyl derivative and carboxylamide (BOUVEAULT and BONGERT), A., i, 142, 144.

3-Methyl-5-propylpyrazole-4-carboxylic acid and its methyl ester (BOUVEAULT and BONGERT), A., i, 144.

4-Methyl-3-propylpyrazolone (BOUVEAULT and BONGERT), A., i, 145.

1-Methylpyrazole-3-carboxylic acid (JOWETT and POTTER), T., 469; P., 56.

4-Methylpyrazole-5-carboxylic acid (KLAGES and RÖNNEBURG), A., i, 529.

4-Methylpyrazole-3:5-dicarboxylic acid and its glycol ethyl ester (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 209.

5-Methylpyrazoline, preparation of, from erotonaldazine (HLADÍK), A., i, 740.

Methylpyridines. See Picolines.

Methylpyrroleazobenzene and its salts (PLANCHER and SONCINI), A., i, 450.

1-Methylpyrrolidine-2-carboxylic acid. See Hygric acid.

1-Methylpyrrolidine-2:2-dicarboxylic acid and its methylamides, and their esters (WILLSTÄTTER and ETTLINGER), A., i, 363.

2-Methylquinazoline (GABRIEL), A., i, 446.

Methylquinol. See Toluquinol.

Methyl- ψ -quinol, chloro-derivatives and their acetates (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 758.

2:3:5-trichloro-6-hydroxy-, and the action of chlorine on, and its acetate (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 758.

Methylquinoline, ω -dihydroxy- (MANASSE), A., i, 29.

2-Methylquinoline. See Quinaldine.

4-Methylquinoline, condensation of, with aldehydes (LOEW), A., i, 577.

6-Methylquinoline, bromo-, chloro-, iodo-, and iodonitro-derivatives and their platinichlorides (EDINGER and EKELEY), A., i, 58.

8-Methylquinoline, 2-amino-, 2-chloro-, 2-chloroamino-, and 2-chloronitro-, and salts of the chloro-compound (FISCHER and DREVERHOFF), A., i, 52.

1-Methyl-2-quinolone, 6-amino-, and its acetyl derivative (DECKER and ENGLER), A., i, 518.

1-Methyl-2-quinolone, 6- and 7-chloro- (FISCHER, BERCKHEMER, and ULRICH), A., i, 53.
5-chloro-6-hydroxy- (HOWITZ and BÄRLOCHER), A., i, 279.
6-hydroxy- (HOWITZ and BÄRLOCHER), A., i, 279; (DECKER and ENGLER), A., i, 518.
8-hydroxy- (DECKER and ENGLER), A., i, 518.
8-mono- and -di-nitro- (DECKER and STAVROPOULOS), A., i, 719.

4-Methylresorcinol, 2:3:6-trichloro-, and its diacetate (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 759.

5-Methylselenolacridol and its salts (EDINGER and RITSEMA), A., i, 720.

α-Methylsorbic acid (*heptinoic acid*), and its salts (JAWORSKY), A., i, 729.
 synthesis of (JAWORSKY and REFORMATSKY), A., i, 4.

Methyl-stannoxylic acid and -tin haloids (POPE and PEACHEY), A., i, 741.

α-Methylstyrene, β-bromo-, and the action of sodium and magnesium on (TIFFENEAU), A., i, 241.

p-Methylstyrene, α-chloro- (AUWERS and KEIL), A., i, 621.

2-p-Methylstyryl-6-methylpyridine, and its salts and dibromide (WERNER), A., i, 574.

α-Methylsuccinic acid (*propanedicarboxylic acid*), α-hydroxy-, and its amide (LUTZ), A., i, 147.

o-Methylsulphaminebenzoic acid and its potassium salt (REMSEN and CLARK), A., i, 823.

2-Methyltetrahydropyrimidine and its salts (HAGA and MAJIMA), A., i, 291.

2-Methyltetrahydroquinazoline and its picrate (GABRIEL), A., i, 446.

1-Methyltetrahydroquinoline. See Kairoline.

Methylthebaol from codeine (KNORR), A., i, 849.

γ-Methylthiocarbamide chloroacetate (WHEELER and MERRIAM), A., i, 525.

Methylthiodiazole (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 208.

Methylthiodiazolecarboxylic acid and its ethyl ester (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 208.

3-Methylthio-5-keto-1-phenyl-4:5-di-hydrotriazole, and its 4-methyl derivative (ACREE), A., i, 867.

3-Methylthiol-1:5-diphenyl-4-benzylidihydrotriazole, 5-hydroxy- and 5-iodo- (BUSCH, KAMPHAUSEN, and SCHNEIDER), A., i, 532.

Methylthioldiphenyldihydrotriazole, iodo-, and its methyl derivative (BUSCH and SCHNEIDER), A., i, 534.

3-Methylthiol-1:5-diphenylthiodiazoline, bromo-, chloro-, and 5-ido-derivatives of (BUSCH, KAMPHAUSEN, and SCHNEIDER) A., i, 532.

3-Methylthiol-4:5-diphenyl-1-p-tolyldihydrotriazole, hydroxy- and iodo- (BUSCH and BLUME), A., i, 535.

Methylthiophenylthiodiazoline, iodo- (BUSCH and SCHNEIDER), A., i, 534.

3-Methylthiol-1:3:5-triphenyldihydrotriazole, 5-hydroxy- and 5-iodo- (BUSCH, KAMPHAUSEN, and SCHNEIDER), A., i, 532.

1-Methylthiopyridone methiodide and ethiodide (FISCHER and MERL), A., i, 52.

1-Methylthioquinoline methiodide and allyl iodide (FISCHER and MERL), A., i, 52.

S-Methyldithiourethane (v. BRAUN), A., i, 14.

Methyl-tin compounds (POPE and PEACHEY), P., 290; A., i, 741; (PFEIFFER and LEHNARDT), A., i, 470, 802.

Methyl-p-toluidine, ω-cyano- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 336.

5-Methyltriazole-4-carboxylic acid and its ethyl ester (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 206.

Methyltriethylammonium periodides (STRÖMHLAND), A., i, 462.

Methyltrimethylene, ω-iodo-, behaviour of, towards alkali hydroxides (DEM-JANOFF), A., i, 807.

1-Methylcyclotrimethylene-2:3-di- and 2:3:3-tri-carboxylic acids (PREISWECK), A., i, 459.

1-Methylcyclotrimethylene-2:3-di- and 2:2:3-tetra-carboxylic acids and their ethyl esters (KÖTZ and STALMANN), A., i, 741.

Methyltropine and ψ -**Methyltropine**, and their salts and benzoyl derivatives (WILLSTÄTTER), A., i, 359.

5-Methyluracil. See Thymine.

Methyl-δ-valerolactone (FICHTER and BEISSWENGER), A., i, 459.

Methylvanillinoxime (FULDA), A., i, 199.

Methyl-m-xylidine, nitroso- (ULLMANN), A., i, 395.

Mica, potash-soda-, as a druse mineral at Striegau (SACHS), A., ii, 656.

Michael's condensation, abnormal course of (SVOBODA), A., i, 174; (MICHAEL), A., i, 348.

Microbes, utilisation of ternary carbon by (MAZÉ), A., ii, 36.

Micro-metallurgy, etching fluid for (RAMSAY), A., ii, 547.

Micro-organisms, action of certain metallic salts on the growth of (NABARRO), A., ii, 387.

decomposition of fodder and foods by (KÖNIG, SPIECKERMANN, and TILLMANS), A., ii, 169 ; (KÖNIG, SPIECKERMANN, and OLIG), A., ii, 386, 447.

solution of sodium α -nucleate by (PLENGE), A., ii, 679.

See also Bacteria, Microbes, and Moulds.

Milk, human (JOLLES), A., ii, 667.

ash of (SÖLDNER and CAMERER), A., ii, 164.

existence of a ferment which decomposes salol in (DESMOULIÈRES), A., ii, 312, 667 ; (MIELE and WILLEM), A., ii, 604.

cow's, composition of (SHERMAN), A., ii, 339.

variation in, in the course of lactation (TRUNZ), A., ii, 742.

daily variations in the amount of fat in (SIEGFELD), A., ii, 37.

creaming of, during its sale (FREAR and PINGREE), A., ii, 340.

influence of rennin on the digestion of (HAWK), A., ii, 669.

fermentation of (TISSIER and GASCHING), A., ii, 743.

natural curding of (KOZAI), A., ii, 446.

coagulation of (LOEVENHART), A., ii, 312.

enzymes of (WENDER), A., i, 590.

the bacteria producing "ropiness" and slime in (KÖNIG, SPIECKERMANN, and TILLMANS), A., ii, 169.

boiled, hydrogen sulphide in (UTZ), A., ii, 561.

raw and boiled, distinction between (WENDER), A., i, 591 ; (UTZ), A., ii, 114, 767 ; (ARNOLD and MENTZEL), A., ii, 580.

detection of raw, in heated milk (UTZ), A., ii, 767.

heated, diminution of lecithin in (BORDAS and DE RACZOWSKI), A., ii, 500.

detection of (UTZ), A., ii, 394.

detection of, by the guaiacum test (WEBER), A., ii, 190 ; (ZINK), A., ii, 458.

detection of, by methylene blue (SCHARDINGER), A., ii, 190.

comparison of methods for detecting (LAUTERWALD), A., ii, 516.

urobilin in (DESMOULIÈRES and GAUTRELET), A., ii, 500.

Milk, cows' and asses', caseinogens of (STORCH), A., i, 214.

of asses, existence of a ferment which decomposes salol in the (DESMOULIÈRES), A., ii, 312, 667 ; (MIELE and WILLEM), A., ii, 604.

buffalo's, the sugar of (PORCHER), A., i, 735.

calculation of the extent of skimming and diluting in the analysis of (LOUISE and RIQUIER), A., ii, 249.

detection of formaldehyde in (MANGET and MARION), A., ii, 115.

detection of hydrogen peroxide in (ARNOLD and MENTZEL), A., ii, 449, 580.

detection of saccharin in (FORMENTI), A., ii, 48.

colorimetric estimation of boric acid in (CASSAL and GERRANS), A., ii, 332.

volumetric estimation of true casein and other proteids in (DENIGÈS), A., ii, 460.

estimation of fat in (SIEGFELD), A., ii, 458 ; (KUMAGAWA and SUTO), A., ii, 702.

use of amyl alcohol in Gerber's method for the estimation of fat in (VAN HAARST), A., ii, 516.

estimation of proteolytic compounds in (VAN SLYKE and HART), A., ii, 399.

Milk sugar. See Lactose.

Minerals, crystallographically similar, connection between the molecular volume and chemical composition of some (PRIOR), A., ii, 377.

artificial production of, by sublimation (TRAUBE), A., ii, 553.

melting points of (DOELTER), A., ii, 26.

of the bole group (KOVÁŘ), A., ii, 557.

two new, analogous to pyrophyllite (MOROZEWICZ), A., ii, 381.

two rare, found on the Caucasus in Batoum (TSCHERNIK), A., ii, 157.

from Leona Heights, Alameda Co., California (SCHALLER), A., ii, 489.

Moravian (KOVÁŘ), A., ii, 553, 556.

from the Radauthal, Harz (FROMME), A., ii, 382.

from Skye and Ross-shire (POLLARD), A., ii, 378.

of Victoria (WALCOTT), A., ii, 302.

from Western Australia (SIMPSON), A., ii, 381.

microchemical reactions of (LEMBERG), A., ii, 27.

Mineral waters. See under Water.

Mirabilite, higher limit of temperature of formation of (VANT'HÖFF and MEYERHOFFER), A., ii, 555.

"Mistelles," differentiation between sweet wines and (LABORDE; HAL-PHEN), A., ii, 689.

Mixtures, freezing point of dilute solutions of (OSAKA), A., ii, 8. binary, distillation of (RAYLEIGH), A., ii, 59. of isomorphous substances, possible forms of the melting point curve of (VAN LAAR), A., ii, 631. which yield mixed crystals, entecitic and transition points in (DUHEM), A., ii, 718. ternary, vapour pressures of (SCHREINEMAKERS), A., ii, 530.

Modulus of elasticity of nickel steels, variations of the (GUILLAUME), A., ii, 272.

Mohawkite from the Mohawk mine, Keweenaw Co., Michigan (KOENIG), A., ii, 157.

Molasses food (GONNERMANN), A., ii, 507. for horses (GRANDEAU), A., ii, 569.

Molecular compounds, theory of (ABEGG), A., ii, 536. heat. See Thermochemistry. surface energy. See Surface energy. weight. See Weight, molecular.

Molgulae, heart action of (HUNTER), A., ii, 663.

Molybdenum, spectrum of (HASSELBERG), A., ii, 706.

Molybdenum compounds, delicate test for (SPIEGEL and MAASS), A., ii, 246.

Molybdenum trichloride, double salts of, with alkali chlorides (CHILE-SOTTI), A., ii, 731.

potassium double chloride (HENDERSON), P., 245.

trioxide, influence of, on the specific rotations of *L*-lactic acid and its potassium salt (HENDERSON and PRENTICE), T., 259; P., 12.

Molybdic acid (MYLIUS), A., ii, 298; (ROSENHEIM), A., ii, 299. action of organic acids on the conductivity of (GROSSMANN and KRÄMER), A., i, 549. reduction of, by nascent hydrogen (REICHARD), A., ii, 217. reduction of, by zinc (MILLER and FRANK), A., ii, 761. hydrates of, and its methyl ester and compounds with acetyl-acetone and salicylaldehyde (ROSENHEIM and BERTHEIM), A., ii, 374.

Molybdic anhydride, electrolytic reduction of acid solutions of (CHILE-SOTTI), A., ii, 730.

Molybdenum, titanium, tungsten, and vanadium, detection and separation of (REICHARD), A., ii, 217. estimation of, in steel (AUCHY), A., ii, 366.

Molybdsalicylic acid, esters (ROSENHEIM and BERTHEIM), A., ii, 375.

Monazite from Brazil (HUSSAK and REITINGER), A., ii, 553. analysis of (METZGER), A., ii, 109.

Montanite from New South Wales (MINGAYE), A., ii, 489.

Morin tetraethyl ether and its acetyl compound (PERKIN and PHIPPS), P., 284.

Morphine, constitution of (PSCHORR, JAECKEL, and FECHT), A., i, 194; (KNORR), A., i, 849. chemical constitution and physiological action of (BERGELL and PSCHORR), A., ii, 502; (VAHLEN), A., ii, 676. detection of (REICHARD), A., ii, 458; (ALOY), A., ii, 581. estimation of (HEYL), A., ii, 459.

Morpholylhydrazine and its hydrochloride, methiodide, benzoyl, and benzylidene derivatives (KNORR and BROWNSDON), A., i, 154.

Morpholylsemicarbazide (KNORR and BROWNSDON), A., i, 154.

Morphothebaine from codeine (KNORR), A., i, 849.

Mould converting quinic acid into protocatechuic acid (EMMERLING and ABDERHALDEN), A., ii, 503. decomposition of salicylic acid by (LOTT), A., ii, 318.

Moulds occurring in dairy products, biology of some (TEICHERT), A., ii, 229. resolution of inactive acids into their optically active components by (MCKENZIE and HARDEN), T., 424; P., 48. power of resistance of some, towards metal poisons (PULST), A., ii, 746. formation of oxalic acid by (EMMERLING), A., ii, 447. See also Micro-organisms.

Mucic acid, methylene compounds of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 149.

Mucilages, vegetable (HILGER), A., i, 793.

Mucin, tendon, glucothionic acid from (LEVENE), A., i, 779.

Mucoids (GIES), A., i, 374.

Multirotation. See under Photochemistry.

Muscle juice, is, the result of autolysis? (SCHMIDT-NIELSEN), A., ii, 659.

Muscle plasma, coagulation of (v. FURTH), A., ii, 440.
Muscles, demarcation currents produced by chemical reagents on (HENZE), A., ii, 163.
 osmotic properties of, due to fatigue (FLETCHER), A., ii, 90.
 influence of calcium and potassium salts on the tone of (STILES), A., ii, 163.
 hydrolysis of (ÉTARD and VILA), A., i, 589.
 elimination of carbon dioxide during activity of (JOHANSSON), A., ii, 90.
 "survival metabolism" of, and oxygen (FLETCHER), A., ii, 89.
 sugars of (OSBORNE and ZOBEL; CADÉAC and MAIGNON), A., ii, 310.
 of warm-blooded animals, changes in the, by deprivation of oxygen (LHOTÁK VON LHOТА), A., ii, 384.
 bronchial, action of drugs on (BRODIE and DIXON), A., ii, 310.
 of Invertebrates and the lower Vertebrates, presence of lactic acid in (GAUTRELET), A., ii, 659.
 human, influence of exercise on (STOREY), A., ii, 309.
 skeletal, effects of constituents of Ringer's fluid on (Row), A., ii, 499.
Musculamine, and its tribenzoyl derivative, from muscles (ETARD and VILA; POSTERNAK), A., i, 111.
Muscular activity, effect of, on the digestion and metabolism of nitrogen (WAIT), A., ii, 308.
Musk oil (SCHIMMEL & Co.), A., i, 186.
Musk rat, urine of the (GIBSON), A., ii, 672.
Mustard, white, influence of formaldehyde on the vegetation of (BOUILHAC and GIUSTINIANI), A., ii, 505.
Mustard oil, estimation of (SCHLICHT), A., ii, 343.
Mutarotation. See under Photochemistry.
Myrcene from hops (CHAPMAN), T., 505; P., 72.
Myricetin, tetrabromo-, and its ethyl ether (PERKIN and PHIPPS), P., 284.
Myristic acid, thiol- (AUGER and BILLY), A., i, 310.
Myrtle wax. See Wax.

N.

Naphtha, Grosny, composition of (MARKOWNIKOFF), A., i, 19.

Naphthas, Russian, elementary composition of, and the basis for classifying them (CHARITSCHKOFF), A., i, 1.
Naphthacarbazoles, 1:2- and 2:1-, and derivatives of the 1:2-compound (JAPP and MAITLAND), T., 269.
Naphthacenequinone series, syntheses in the (DEICHLER and WEIZMANN), A., i, 349, 350, 640.
Naphthacenequinone, amino-6-hydroxy- and nitro-6-hydroxy-derivatives (DEICHLER and WEIZMANN), A., i, 640.
 1-hydroxy-, and its acetate (DEICHLER and WEIZMANN), A., i, 349.
 dihydroxy-, and its diacetate (DEICHLER and WEIZMANN), A., i, 349, 350.
 6:11-dihydroxy-, and its amino- and nitro-derivatives (DEICHLER and WEIZMANN), A., i, 641.
 trihydroxy-, and its isomeride (DEICHLER and WEIZMANN), A., i, 350.
Naphthacenequinonesulphonic acids, mono- and di-hydroxy- (DEICHLER and WEIZMANN), A., i, 350.
α-Naphthacoumarin-4-carboxylic acid and **β-Naphthacoumarin-3-carboxylic acid** and their ethyl esters (BARTSCH), A., i, 648.
Naphthacoumarins, α - and β -, alkyl derivatives of (BARTSCH), A., i, 648.
3- β -Naphthacoumaryl phenyl and methyl ketones and the dibromide and phenylhydrazone of the methyl compound (BARTSCH), A., i, 649.
Naphthacridines (ULLMANN and FETVADJIAN), A., i, 520.
Naphthacridinedisulphonic acids and their salts (MOHLAU and HAASE), A., i, 118.
Naphthacrihydride (isonaphthacridine) (MOHLAU and HAASE), A., i, 126.
α-Naphthaldehyde, 2-hydroxy-, and its acetate, and benzoate (HELBRONNER), A., i, 764.
Naphthaldehydic acid, hydroxy-, and its diacetyl derivative (GRAEBE and GUINSBOURG), A., i, 408.
Naphthalene from the transformation products of hæmatoxylon (v. KOSTANECKI and ROST), A., i, 646.
 in ethereal oils (v. SODEN and ROJAHN), A., i, 187.
 from purpurogallin (PERKIN and STEVEN), T., 199.
 specific heat and heat of solution of, in various organic solvents (FORCH), A., ii, 632.
 detection of small quantities of colophony in (HODUREK), A., ii, 336.

Naphthalene, 1:5- and 1:8-dinitro-, separation of (ECKSTEIN), A., i, 20.

α -Naphthaleneazo- β -naphthol (v. NIEMENTOWSKI), A., i, 133.

α -Naphthalene carboxylic acid. See α -Naphthoic acid.

Naphthalenedicarboxylic acid. See Naphthalic acid.

β -Naphthalene-indigotin derivatives (WICHELHAUS), A., i, 632.

β -Naphthalenesulpho-alanines, -glycine, -leucines, -phenylalanine, and -serine (FISCHER and BERGELL), A., i, 24.

β -Naphthalenesulpho-*d*-alanylglycine and its ethyl ester (FISCHER and BERGELL), A., i, 694.

β -Naphthalenesulpho-galaheptosaminic acid, -hydroxy- α -pyrrolidine-, and - α -pyrrolidine-carboxylic acids (FISCHER and BERGELL), A., i, 24.

β - β -Naphthalenesulphoglycylalanine (FISCHER), A., i, 467.

β -Naphthalenesulphoglycyl-*d*-alanine, -*dL*-leucine, and -tyrosine (FISCHER and BERGELL), A., i, 694.

β -Naphthalenesulphoglycylglycine (FISCHER and BERGELL), A., i, 25; (FISCHER), A., i, 467.

β -Naphthalenesulphoglycylglycinecarboxylic acid, ethyl ester (FISCHER), A., i, 467.

Naphthalenesulphonic acid, 1:8-dinitro-, and its salts (ECKSTEIN), A., i, 20.

Naphthalene-1:4:8-tricarboxylic acid and its silver salt (GRAEBE and HAAS), A., i, 409.

Naphthalic acid, amino- and nitro-derivatives (GRAEBE and BRIONES), A., i, 408.

4-bromo- (GRAEBE and GUINSBOURG), A., i, 408.

mono- and tri-iodo- and dinitro- (FRANCESCONI and BARGELLINI), A., i, 36.

Naphthalic anhydride, fluorescence of (FRANCESCONI and BARGELLINI), A., i, 34; (HEWITT), A., i, 346.

Naphthalic anhydride, bromo-, *tri*- and *tetra*-chloro- and *tri*iodo- and the oximes and phenylhydrazones of the bromo-, *tetrachloro*- and *tri*iodo-derivatives (FRANCESCONI and BARGELLINI), A., i, 35.

Naphthalidomethyl *n*-butyl ketone (ZINK), A., i, 172.

Naphthalimide, bromo-, *tetra*- and *hexa*-chloro-, and *tri*iodo-derivatives of (FRANCESCONI and BARGELLINI), A., i, 36.

β -Naphthamorpholone (LEES and SHEDDEN), T., 759; P., 132.

Naphthaphenoxazine and its derivatives (FISCHER and HEPP), A., i, 654.

Naphthaphenoxazole, 2-hydroxy-, and its methyl ether (FISCHER and HEPP), A., i, 654.

Naphthaquinonebromodiketohydrindene, bromo- (STADLER), A., i, 103.

Naphthaquinonediketohydrindene, bromo-, and its salts and monoxime (STADLER), A., i, 102.

Naphthastyryl, reactions of (SCHROETER and RÖSSLER), A., i, 118.

1:8-Naphthastyryl-acetic and -phenylacetic acids, and their ethyl esters (SCHROETER and RÖSSLER), A., i, 117.

Naphthazarin and its potassium salt (PERKIN and WILSON), T., 140.

α -Naphthoic acid, methyl ester, and its rotation (RUPE, LOTZ, and SILBERBERG), A., i, 567.

β -Naphthol and its derivatives, formation of, from β -naphthylamine (BADISCHE ANILIN- & SODA-FABRIK), A., i, 480.

condensation of, with aldehydes and amines (BETTI and TORRICELLI), A., i, 480; (BETTI), A., i, 510.

Naphthols, α - and β -, action of phosphorus on (WICHELHAUS), A., i, 818.

β -Naphtholaldaminic bases, functions of (BETTI and TORRICELLI), A., i, 480.

β -Naphtholisoamylamine and its picrate (BETTI and TORRICELLI), A., i, 480.

β -Naphtholamylbenzylideneamine (BETTI), A., i, 510.

β -Naphthol-*o*-azobenzoic acid (ANSCHUTZ and SCHMIDT), A., i, 56.

β -Naphthol-*o*-, -*m*-, and -*p*-azobenzoic acids, and the nitriles of the *m*- and *p*-acids (v. NIEMENTOWSKI), A., i, 133.

β -Naphthol-6-azo 2-nitrophenol-4-sulphonic acid (BADISCHE ANILIN- & SODA-FABRIK), A., i, 663.

β -Naphtholbenzylamine and its salts and acyl derivatives (BETTI and TORRICELLI), A., i, 480.

action of aldehydes on (BETTI and FOÀ), A., i, 511.

β -Naphtholbenzylamineisopropylidene-carboxylic acid, ethyl ester (BETTI and FOÀ), A., i, 512.

β -Naphtholbenzyl-cinnamylidene-, -furylidene-, -isopropylidene-, and -salicylidene-amines (BETTI and FOÀ), A., i, 511.

β -Naphtholbisazodi-phenyl- and -tolyl-2:2'-disulphonic acids and their barium salts (ELBS and WOHLFAHRT), A., i, 213.

β -Naphtholfurylamine and its hydrochloride (BETTI and TORRICELLI), A., i, 481.

β -Naphthol- α -hydroxybenzylamine, hydrochloride (BETTI and TORRICELLI), A., i, 481.

Naphtholonaphthaphenoxazole (FISCHER and HEPP), A., i, 654.

β -Naphthoxazinebenzylidenemethylene-amine (BETTI and FOÀ), A., i, 511.

β -Naphthoxazines containing mixed aldehydic and ketonic radicles (BETTI and FOÀ), A., i, 511.

β -Naphthoxyacetic acid, α -nitro-, preparation and reduction of (LEES and SHEDDEN), T., 758; P., 132.

α -Naphthoylbenzoic acid, α -hydroxy-, and its esters, salts, and acetyl derivative (DEICHLER and WEIZMANN), A., i, 349.

α -Naphthylamine, *N*-acetyl derivative, 3:8-dibromo- and chloronitro- (VERDA), A., i, 21.

N-acetyl and *N*-formyl derivatives, *N*-chloro- (SLOSSON), A., i, 476.

β -Naphthylamine and its derivatives, conversion of, into β -naphthol and its derivatives (BADISCHE ANILIN- & SODA-FABRIK), A., i, 480.

chloro-*N*-acetyl (JOHNSON), A., i, 580.

N-formyl derivative, *N*-chloro- (SLOSSON), A., i, 476.

Naphthylamines, condensation of, with nitro-derivatives of benzyl chloride (DARIER and MANNASSEWITCH), A., i, 82.

acetylation of some (CYBULSKY), A., i, 775.

alkylated, compounds of, with *s*-trinitrobenzene (HIBBERT and SUDBOROUGH), T., 1334; P., 225.

β -Naphthylaminoacetamide (LUMIÈRE and PERRIN), A., i, 832.

α -Naphthylaminoethylcyanide (MARON), A., i, 826.

2- α - and - β -Naphthylaminopyridines (FISCHER and MERL), A., i, 52.

Naphthyl-2-benzotriazole, 4-hydroxy- (ELBS and KELPER), A., i, 662.

β -Naphthyldi-methyl- and -ethyl-amine *d*-camphorsulphonates, rotation of (REYCHLER), A., i, 24.

1:3-Naphthylenediamine-6-sulphonic acid and its dithiocarbamide (KALLE & Co.), A., i, 555.

β -Naphthylhydrazone, use of, for the detection and separation of the sugars (HILGER and ROTHENFUSSER), A., ii, 187.

α -Naphthylidene- α - and - β -naphthylamines, 2-hydroxy- (BARTSCH), A., i, 649.

α -Naphthylmagnesium bromide, action of selenium and of sulphur on (TABOURY), A., i, 748.

β -Naphthylmethylethylamine *d*-camphorsulphonate, rotation of (REYCHLER), A., i, 23.

α -Naphthylmethylglycolic acid (GRIGNARD), A., i, 31.

β -Naphthylphenylformazylbenzene (FICHTER and FROHLICH), A., i, 723.

β -Naphthyl- ψ -thiohydantoic acid (JOHNSON), A., i, 580.

β -Naphthyl- ψ -thiohydantoin, labile and stable (JOHNSON), A., i, 580.

Narcotics, new class of (FISCHER and v. MERING), A., i, 552.

Narcotine, constitution of (FREUND and BECKER), A., i, 572.

action of high temperatures on, when fused with carbamide (BECKURTS and FRERICHS), A., i, 717.

estimation of, in opium (VAN DER WIELEN), A., ii, 519.

Nataloemodin and its methyl ether (LÉGER), A., i, 356.

Nataloin and its tetra- and hexabezoyl derivatives (LÉGER), A., i, 356.

Natural waters. See under Water.

Nephrite from New Zealand (DIESEL-DORFF), A., ii, 556.

Nephrotoxins (BIERRY), A., ii, 443.

Nerol, occurrence of, and its acetate and formate (v. SODEN and ZEITSCHEL), A., i, 267.

geranol, and cyclogeraniol, physiological action of (HILDEBRANDT), A., ii, 660.

Nerol, Nerolidol, and Nerylidiphenylurethane (HESSE and ZEITSCHEL), A., i, 189.

Neroli oil (orange blossom oil) (SCHIMMEL & Co.), A., i, 186; (HESSE and ZEITSCHEL), A., i, 189; (WALBAUM and HUTHIG), A., i, 506.

Nerve-cells, changes in, after poisoning with the venom of the Australian tiger snake (KILVINGTON), A., ii, 92.

Nervous system, the choline test for active degeneration of the (MOTT), A., ii, 310.

Newberyite and struvite, simultaneous production of (DE SCHULTEN), A., ii, 655.

Nickel from nickelpyrrhotite from Sudbury, Canada (DICKSON), A., ii, 156.

Nickel salts, behaviour of solutions of, at the anode (COEHN and GLASER), A., ii, 80.

Nickel ammonium chromate (BRIGGS). T., 392.

peroxide, electrolytic (HOLLARD), A., ii, 294.

Nickel sulphate, hydrates of, condition of, and conductive power of, in methyl alcohol solution (DE BRUYN and JUNGIUS), A., ii, 651.
 solubility curves of the hydrates of (STEELE and JOINSON), P., 275.

Nickel carbonyl, physical properties of (DEWAR and JONES), A., ii, 485.
 cyanide, compounds of, with ammonia and benzene, ammonia and aniline, and ammonia and phenol (HOFMANN and HÖCHTLEN), A., i, 469.

Nickel, reactions of cobalt and (MAI and SILBERBERG), A., ii, 216.
 detection of cobalt in presence of (REICHARD), A., ii, 245.
 estimation of cobalt in presence of (COPAUX), A., ii, 454.
 separation of manganese from cobalt and (POZZI-ESCOR), A., ii, 107.
 separation of, from zinc by hydrogen sulphide in a solution containing gallic acid (LEWIS), A., ii, 454.

Nickelpyrrhotite from Sudbury, Canada, nickel from (DICKSON), A., ii, 156.

Nickel steels, theory of (GUILLAUME), A., ii, 548, 600.
 properties of (GUILLET), A., ii, 297, 483, 650.
 variations of the modulus of elasticity of (GUILLAUME), A., ii, 272.

Nicotine, action of iodine on (KIPPENBERGER), A., ii, 582.

Nicotinic acid (*pyridine-3-carboxylic acid*), 6-chloro-, and its hydrazide, hydrazones, and dithiosemicarbazide (MARCKWALD and RUDZIK), A., i, 514.

*iso***Nicotinic acid** (*pyridine-4-carboxylic acid*), 3-amino- (KIRPAL), A., i, 198.
 2:3:5-trichloro- (SELL and DOOTSON), T., 400; P., 48.
 3-hydroxy- (KIRPAL), A., i, 198.

Niobite. See Columbite.

Nitric acid. See under Nitrogen.

Nitrides. See under the separate Metals and Metalloids.

Nitrification (FRAPS), A., ii, 448.
 organisms. See Bacteria.

Nitriles, action of sodium on (v. WALTHER), A., i, 582; (v. WALTHER and KRUMBIEGEL), A., i, 661.
 aromatic, synthesis of, from benzenoid hydrocarbons by means of mercury fulminate and aluminium chloride (SCHOLL; SCHOLL and KAČER), A., i, 254.
 of hydroxy-acids, preparation of, from ketones (BUCHERER), A., i, 612.

Nitriles, α -amino-, arylation of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 753.
 See also Dinitriles.

*iso***Nitriles**, cyclic, and their derivatives (SABANÉEFF and RAKOWSKY), A., i, 814.

Nitroamines, aromatic, preparation of, from phthalimides (LESSER), A., i, 618.

Nitro-compounds, formation of, from the oxidation of oximes (BAMBERGER and SELIGMAN), A., i, 99.
 coloured substances derived from (JACKSON and EARLE), A., i, 339.
 aromatic, reduction of (ALWAY and WELSH), A., i, 263.
 reduction of, to amines (KUNZ), A., i, 813.
 influence of the cathode material on the electrolytic reduction of (LÖB), A., i, 20.

Nitro-ethers, hydrolysis of (VIGNON and BAY), A., i, 2.

Nitrogen, amount of free, in atmospheric air, and its density (GAUTIER), A., ii, 138.
 in proteids (OSBORNE and HARRIS), A., i, 585.
 in the rain water at Ploty in 1900, 1901, and 1902 (WELBEL), A., ii, 508, 749.
 preparation of, from ammonium nitrite (v. KNORRE), A., ii, 205.
 stereochemistry of (REYCHLER), A., i, 23.
 quinquevalent, isomeric partially racemic salts containing (KIPPING), T., 873, 889, 902, 937; P., 164, 166; (TATTERSALL and KIPPING), T., 918; P., 145.
 new isomerism of (WEDEKIND and OECHSLER), A., i, 517.
 boiling point, freezing point, and vapour tension of pure, at low pressures (FISCHER and ALT), A., ii, 72.
 freezing and melting pressure of (FISCHER and ALT), A., ii, 72.
 burning of, to nitric oxide in the electric flame (MUTHMANN and HOFER), A., ii, 206.
 atmospheric, oxidation of, by electric discharges (v. LEPEL), A., ii, 420.
 effect of muscular activity on the digestion and metabolism of (WAIT), A., i, 308.
 atmospheric, rendering, available for agriculture and industry (FRANK), A., ii, 570.
 assimilation of, by *Aspergillus niger* (CZAPEK), A., ii, 35, 168.

Nitrogen, assimilation of free, by Bacteria (BEYERINCK and VAN DELDEN), A., ii, 34; (v. FREUDENREICH; GERLACH and VOGEL), A., ii, 744.
 as nitrates, dependence of the amount of, on the state of cultivation of the soil (TRETIJAKOFF), A., ii, 749.
 manurial experiments with different forms of, on rye (CLAUSEN), A., ii, 174.
 effect of a deficiency of, on plants (WILFARTH and WIMMER), A., ii, 506.
 atmospheric, fixation of, by alfalfa on ordinary prairie soil under various treatments (HOPKINS), A., ii, 324.
Nitrogen compounds, quinquevalent, isomerism and optical activity of (JONES), T., 1400; P., 228.
 tertiary, with a negative grouping, action of cyanogen bromide on (v. BRAUN), A., i, 610.
 mercury derivatives of (FÜRTH), A., ii, 294.
 with phosphorus (MICHAELIS), A., i, 379; (UHLFELDER), A., i, 671.
 in plants (NEDOKUCHAEFF), A., ii, 508.
 in arable soil (ANDRÉ), A., ii, 235, 508.
Nitrogen fluoride, attempts to prepare (RUFF and GEISEL), A., ii, 724.
monoxide (nitrous oxide), preparation of (LIDOFF), A., ii, 361.
dioxide (nitric oxide), preparation of, electrically, from nitrogen (MUTHMANN and HOFER), A., ii, 206.
 density of (GRAY), P., 66.
 reduction of, by alkaline pyrogallol (OPPENHEIMER), A., ii, 539.
peroxide or tetroxide (nitric peroxide), constitution of (DIVERS), P., 283.
 action of, on organo-magnesium compounds (WIELAND), A., i, 685.
 action of, on pyridine (SPENCER), P., 79.
trioxide (nitrogen sesquioxide; nitrous anhydride), synthesis of (HELBIG), A., ii, 361.
pentoxide (nitric anhydride), new synthesis of (HELBIG), A., ii, 361.
Nitrogen acids :—
Nitrous acid, reaction between, and amines (v. EULER), A., i, 298.
 behaviour of, towards methyl-orange (LUNGE), A., ii, 575.
 study of the interaction of, with sulphurous acid (CARPENTER and LINDER), A., ii, 238.

Nitrogen acids :—
Nitrous acid, estimation of, in sea water (GEELMUYDEN), A., ii, 577.
Nitrites (VOGEL), A., ii, 591.
 preparation of (BOUVEAULT and WAHL), A., i, 599.
Nitric acid, preparation of, by the oxidation of atmospheric nitrogen by electric discharges (v. LEPEL), A., ii, 420.
 absorption spectrum of (HARTLEY), T., 233.
 absorption spectra of, in various states of concentration (HARTLEY), T., 658; P., 103.
 strong, physical and chemical properties of (VELEY and MANLEY), T., 1015; P., 196.
 and hydrochloric acid, relative strength of (KÜHLING), A., ii, 203.
 estimation of, titrimetrically (PHELPS), A., ii, 240.
 estimation of, volumetrically (DÉ BOURDEAUX), A., ii, 573.
 estimation of, in water (SCHMATOLLA), A., ii, 101; (FRERICHS), A., ii, 328; (MÜLLER), A., ii, 690.
 estimation of, in waters by the Schulze-Schlösing method (DE KONINCK), A., ii, 754.
 estimation of, in sea water (GEELMUYDEN), A., ii, 578.
Nitrates, preparation of (BOUVEAULT and WAHL), A., i, 599.
 production and distribution of, in cultivated soils (KING and WHITSON), A., ii, 570.
 new reaction for (DE KONINCK), A., ii, 21.
Orthonitric acid and the compounds obtained from it by the elimination of water (ERDMANN), A., ii, 73.
Hyponitrous acid, preparation of (WIELAND), A., i, 690.
Nitrogen, apparatus for the estimation of (PORCHER and BRISAC), A., ii, 179; (MARQUIS), A., ii, 687.
 new form of Kjeldahl apparatus for the estimation of (VOGTHERR), A., ii, 179.
 estimation of, by Kjeldahl's method (KUTSCHER and STEUDEL; SCHÖNDORFF), A., ii, 687; (BEGER, FINGERLING, and MORGAN), A., ii, 753; (MALFATTI), A., ii, 754.
 estimation of, in cheese and milk (VAN SYLKE and HART), A., ii, 399.
 estimation of, in faeces (ZAITSCHEK), A., ii, 743.

Nitrogen, Dumas' method for the estimation of, in gaseous mixtures (CHARITSCHKOFF), A., ii, 753.
 estimation of, in nitrates and nitric esters (WOHL and POPPENBERG), A., ii, 328.
 applicability of Schloesing's method to the estimation of, in nitrates in presence of organic substances (LIECHTI and RITTER), A., ii, 574.

Nitrogentricarboxylic acid, and its ethyl ester (DIELS), A., i, 324.

Nitro-group, electro-synthesis in the (ULPIANI and GASPARINI), A., i, 150.

Nitro-groups, influence of, on the reactivity of benzene haloiods (LAPWORTH), P., 23.

Nitrolic acids, new method of preparation of (PONZIO), A., i, 453.

Nitrosoamines, analogy between formylamines and (SCHMIDT), A., i, 683.

Nitroso-compounds, relation between diazo-compounds, diazo-ethers, and (HANTZSCH and WECHSLER), A., i, 210.

iso-**Nitroso-derivatives**, optical study of (MULLER and BAUER), A., ii, 705.

Nitroso-group, estimation of the (CLAUSER and SCHWEITZER), A., ii, 180.

Nitroso-organic anhydrides (FRANCESCONI and CIALDEA), A., i, 788.

Nitrosyl chloride, preparation of (FRANCESCONI and BRESCIANI), A., ii, 724.

Nitrous gases, additive reactions with (WIELAND), A., i, 764.

Nonane, β -amino-, and its salts (THOMS and MANNICH), A., i, 680.

Nonane- α -dicarboxylic acid (SHUKOFF and SCHESTAKOFF), A., i, 398.

Nonanedicarboxylic acids. See also *iso*-Propylisobutylsuccinic acids.

Noninoic acid (*isoheptylpropionic acid*, ζ -methyl- α -octinoic acid), and its esters (MOUREU and DELANGE), A., i, 313.

α -**Noninoic acid** (*hexylpropionic acid*), and its esters, amides, and chloride (MOUREU), A., i, 312; (MOUREU and DELANGE), A., i, 313.

n-**Nonyl alcohol**, formation of (GUERBET), A., i, 61.

Nonyl alcohol (*methylheptylcarbinol*) (HOUBEN), A., i, 48; (THOMS and MANNICH), A., i, 673.

Nonylpropionic acid. See α -Undecinoic acid.

Norcocafavetin (HESSE), A., i, 192.

Norcotarninemethine methiodide and bromo- (FREUND and BECKER), A., i, 573.

Norcotarnone and its oxime and nitrile and their acetyl derivatives and bromo- (FREUND and BECKER), A., i, 573.

Norleprario acid (HESSE), A., i, 706.

Noryohimbine (SPIEGEL), A., i, 274.

Nuclease which decomposes nucleic acid (IWANOFF), A., ii, 678.

Nucleic acid (LEVENE), A., i, 375; (MENDEL, UNDERHILL, and WHITE), A., ii, 314.
 of the thymus, optical activity of (GAMGEE and JONES), A., i, 780.
 of the wheat embryo, specific rotation of the (OSBORNE), A., i, 543.
 yeast, decomposition of, by Bacteria (SCHITTENHELM and SCHRÖTER), A., ii, 679.
 fermentative decomposition of, by Fungi (IWANOFF), A., ii, 678.
 compounds of, and its derivatives with formaldehyde (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 543.

α -**Nucleic acid**, sodium salt, solution of, by micro-organisms (PLENGE), A., ii, 679.

Nucleic acids, preparation and analyses of (LEVENE), A., i, 668, 779.
 decomposition of (LEVENE), A., i, 668.
 enzymatic decomposition of (ARAKI), A., i, 668.

Nucleohiston of the thymus (HUIS-KAMP), A., i, 779.

Nucleo-histone and -proteid, from the thymus, chemistry of the (BANG), A., ii, 664, 739.

Nucleoproteid of the liver (WOHLGEMUTH), A., ii, 440.

Nucleoproteids, optical activity of (GAMGEE and JONES), A., i, 374, 451.

Nutmeg, carbohydrates of (BRACHIN), A., ii, 568.

Nutrition, organic phosphorus compounds and (BILLON and STASSANO), A., ii, 439.

O.

Oak extract, detection of chestnut-tree extract in (JEAN), A., ii, 118.

Oats, the so-called alkaloid of (WEISER), A., ii, 747.

Obituary notices :—
 George Griffith, T., 650.
 John James Hummel, T., 652.
 Sir William Chandler Roberts-Austen, T., 654.

Oceanic salt deposits, formation of (VAN'T HOFF), A., ii, 143; (VAN'T HOFF and MEYERHOFFER), A., ii, 144, 555; (VAN'T HOFF and BARSCHALL), A., ii, 434; (VAN'T HOFF and JUST), A., ii, 555.

Octahydronaphthalene oxide, dibromo- (HÖNIGSCHMID), A., i, 165.

Octamethyltetraaminoanthraquinone (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 499.

$\alpha\beta$ -Octamethylenediamine, action of nitrous acid on (LOEBL), A., i, 735.

n-Octane and *n*-hexane, vapour pressures and boiling points of mixtures of (YOUNG and FORTEY), T., 56.

Octanedicarboxylic acid. See α -Methyl- δ -isopropyladipic acid.

Octane- $\alpha\beta$ -diol (BOUVEAULT and BLANC), A., i, 731.

α -Octenoic acid, β chloro- (*amylchloroacrylic acid*), ethyl ester (MOUREU and DELANGE), A., i, 676.

Octenoic acids. See also:—
 — α -Dimethylidihydrosorbic acid.
 — α -Ethylidihydrosorbic acid.

Octinoic acid (*amylpropioic acid*), preparation and derivatives of (MOUREU), A., i, 312.

Octinoic acid (*isoamylpropioic acid*, ϵ -methyl- α -heptinoic acid), and its esters (MOUREU and DELANGE), A., i, 313

Octinoic acids. See also:—
 — α -Ethylsorbic acid.
 Dimethylsorbic acids.

n-Octyl alcohol and its phenylurethane (BOUVEAULT and BLANC), A., i, 598.

Octylenedicarboxylic acid. See Methylallylalipidic acid.

Enanthaldehyde. See Heptaldehyde.

Oil from gurjun balsam (TSCHIRCH and WEIL), A., i, 771.

from the resin of *Pinus palustris* (TSCHIRCH and KORITSCHONER), A., i, 105.

from water-melon seeds (WOINAROWSKAJA and NAUMOVA), A., ii, 171.

from Russian "white pitch" (TSCHIRCH and KORITSCHONER), A., i, 107.

Oils, influence of atmospheric oxidation on the composition and analytical constants of (SHERMAN and FALK), A., ii, 703.

fermentative decomposition of (BRAUN and BEHRENDT), A., ii, 565.

lecithin in (JÄCKLE), A., ii, 191.

fatty, detection of (HARTWICH and UHLMANN), A., ii, 36, 395.

mineral, detection of resin oil in (HALPHEN), A., ii, 186.

Oils, mineral, separation of, from oil of turpentine and resin oil (HERZFELD), A., ii, 186.

See also Naphtha, Petroleum, and Shale oil.

vegetable (SCHIMMEL & CO.), A., i, 569.

naphthalene in (v. SODEN and ROJAHN), A., i, 187.

the iodine number of (SANGLÉ-FERRIÈRE and CUNIASSE), A., ii, 336.

colour reaction of (KREIS), A., ii, 114.

the bromine absorption of (MCILHINEY), A., ii, 340.

iodine absorption of (TOLMAN and MUNSON), A., ii, 458.

Olefinedicarboxylic acids, ethyl esters, action of ammonia and organic bases on (RUHEMANN), T., 374, 717; P., 50, 128.

Olefines, new method of preparing (IPATIEFF), A., i, 593, 594; (IPATIEFF and HUHN), A., i, 595.

addition of halogen hydrides to, in acetic acid solution (IPATIEFF and OGONOWSKY), A., i, 595.

bromides and chlorides of, action of water on (FROEBE and HOCHSTETTER), A., i, 320.

See also Hydrocarbons.

Oleic acid, isomerism between elaidic acid and (ALBITZKY), A., i, 227.

oxidation of, by Caro's acid (ALBITZKY), A., i, 228.

oxidation of, by potassium permanaganate in presence of small quantities of alkali (HOLDE and MARCUSSEN), A., i, 789.

Oleins, synthesis of (GUTH), A., i, 226.

Oleodistearin (KREIS and HAFNER), A., i, 788.

Oleyl alcohol and its phenylurethane (BOUVEAULT and BLANC), A., i, 730.

Olivaceic acid, Olivacein, and Olivetorin (HESSE), A., i, 705.

Olive oil, alcohol from (GILL and TUFTS), A., i, 557.

phytosterol from (SANI), A., i, 250.

Olive oils, mixed glycerides in (HOLDE), A., i, 140.

Olives, composition of the skins of (PEANO), A., ii, 173.

formation and detection of the oil in (HARTWICH and UHLMANN), A., ii, 36.

Olivil and its isomeride (KÖRNER and VANZETTI), A., i, 430.

Ononin, **Ononetin**, and **Onospin**, and their acetyl derivatives (v. HEMMELMAYR), A., i, 508.

Ophiocaulon Firingalavense, resin from (JUMELLE), A., i, 712.

Opianic acid, nitro-, tautomerism of (WEGSCHEIDER), A., i, 562.

Opium, evaluation of (REICHARD), A., ii, 117 ; (LÉGER), A., ii, 583.

analysis of preparations containing (ALLEN and SCOTT-SMITH), A., ii, 117.

estimation of codeine and narcotine in (VAN DER WIELEN), A., ii, 519.

Opium bases (HESSE), A., i, 773.

Optical activity. See under Photochemistry.

double-isomerism (HARTWALL), A., ii, 3.

Orange blossom oil. See Neroli oil.

Orangite, composition of (SCHILLING), A., ii, 85.

Orcinol (*3:5-dihydroxytoluene*), dibenzoate of (SIMON), A., i, 98.

monomethyl ether, action of nitric acid on (HENRICH and NACHTIGALL), A., i, 414.

Orcinol, 2- and 4-amino-, and their hydrochlorides, and 2- and 4-nitro- (HENRICH and MEYER), A., i, 413.

2-nitroso-, constitution of (HENRICH), A., i, 413.

Organic compounds, theory of the action of ferric chloride in the synthesis of (GUREWITSCH), A., i, 40.

trustworthiness of the dissociation constant as a means of determining the identity and purity of (SCUDDER), A., ii, 471.

colourless, sensitiveness of, to light (PINNOW), A., ii, 49.

critical constants of some (VESPIGNANI), A., i, 545.

vapour densities of some (RAMSAY and STEELE), A., ii, 635.

boiling point of, in relation to molecular weight and chemical constitution (HENRY), A., ii, 8.

behaviour and melting points of some, at very low temperatures (CARRARA and CORPADORO), A., ii, 712.

solubility of some, and density of their solutions (SPEYERS), A., ii, 64.

apparatus for the introduction of a definite number of halogen atoms into (MARCKWALD), A., i, 806.

micro-chemical analysis of (BEHRENS), A., ii, 246.

estimation of halogens in (BAUBIGNY and CHAVANNE), A., ii, 510.

estimation of selenium in (LYONS and SHINN), A., ii, 326 ; (FRERICHS), A., ii, 327.

Organic matter, decarbonisation of (NEUMANN), A., ii, 243.

Organic radicles, replacement of metallic radicles by, in tautomeric compounds, nature and probable mechanism of the (LANDER), T., 414 ; P., 47.

substances, action of cathode rays on (GOLDSTEIN), A., ii, 524.

estimation of sulphur in (v. KONEK), A., ii, 572.

estimation of sulphur and phosphorus in (SHERMAN), A., ii, 325.

Organism, human, metabolism of matter and energy in the (ATWATER, BENEDICT, BRYANT, SMITH, and SNELL), A., ii, 308.

influence of catalytic agents on the functions of the (DE POEHL), A., ii, 164.

oxidation and resolution in the (BACH and BATTELLI), A., ii, 560.

behaviour of allantoin in the (LUZZATO), A., ii, 563.

degradation of carbohydrates in the (BACH and BATTELLI), A., ii, 495.

behaviour of carvone and santanol in the (HILDEBRANDT), A., ii, 166.

action of chitosine and glucosamine in the (CATHCART), A., ii, 741.

change of cystin into taurine in the (v. BERGMANN), A., ii, 665.

utilisation of glycerol in the (LEO), A., ii, 160.

behaviour of halogen-substituted toluenes and aminobenzoic acids in the (HILDEBRANDT), A., ii, 228.

behaviour of stereoisomerides in the (NEUBERG and MAYER), A., ii, 496.

replacement of inorganic constituents of the, by others (BOKORNY), A., ii, 659.

distribution of arsenic in, and elimination of arsenic from, the (MOUNEYRAT), A., ii, 444.

use of the colorimetric bomb to demonstrate the presence of arsenic in the (BERTRAND), A., ii, 604.

origin of indican in the (SCHOLZ), A., ii, 563.

normal presence of lead in the (MEILLÈRE), A., ii, 499.

iron in the (SCHMEY), A., ii, 740.

cyclic terpenes and camphor in the (FROMM, HILDEBRANDT, and CLEMENS), A., i, 429 ; (HILDEBRANDT), A., ii, 166.

occurrence of uracil in the (KOSSEL and STEUDEL), A., ii, 311.

protein synthesis in the (HENDERSON and DEAN), A., ii, 668.

See also Physiological action.

Organs, apparatus for the perfusion of surviving (BRODIE), A., ii, 439.
 and extracts of, conditions of the oxidation of salicylaldehyde by (ABELOUS and ALOY), A., ii, 560.
 isolation of the enzyme which effects anaerobic respiration in (STOKLASA and CZERNY), A., ii, 320.
 influence of putrefaction on the amount of pentoses in (EBSTEIN), A., ii, 92.
 production of hydrogen sulphide from the extract of, and the influence of temperature on it (ABELOUS and RIBAUT), A., ii, 605.
 arsenic in (GAUTIER), A., ii, 676.
 animal, distribution of calcium in (TOYONAGA), A., ii, 164.
 estimation of purine derivatives in by aid of the method of corrected values (BURIÁN and HALL), A., ii, 617.
 estimation of chlorine in (STRZYZOWSKI), A., ii, 450.
Origanum floribundum, thymol from the oil of (BATTANDIER), A., i, 165.
Orthoclase, conditions of formation of (BAUR), A., ii, 303.
 "Orthoform neu." See Benzoic acid, *m*-amino-*p*-hydroxy-, methyl ester.
Orthonitric acid. See under Nitrogen.
Osazones, action of acetic anhydride on (BILTZ and WEISS), A., i, 59.
Osmides, iridium, analysis of (LEIDIÉ and QUENNESSEN), A., ii, 576.
Osmium, hexavalent, complex salts of (WINTREBERT), A., ii, 219.
Osmotic equilibrium, displacement of, by surface tension (KAUFLER), A., ii, 531.
 membranes, prepared by the electrolytic process (MORSE), A., ii, 272.
 pressure. See under Diffusion.
 properties of muscle due to fatigue (FLETCHER), A., ii, 90.
 theory and the theory of electrolytic dissociation (TRAUBE), A., ii, 63.
Osotriazoles, formation of (BILTZ and WEISS), A., i, 59.
Ovomucoid (LANGSTEIN), A., i, 451.
Oxalacetic acid, ethyl ester, action of tetrazoic chlorides on (RABISCHONG), A., i, 55.
Oxalic acid, formation of, by moulds (EMMERLING), A., ii, 447.
 electrolysis of (SALZER), A., ii, 129.
 velocity and nature of the reaction between bromine and (RICHARDS and STULL), A., ii, 15.
 velocity of reaction between potassium permanganate and (EHRENFIELD), A., ii, 134.
Oxalic acid, phenylhydrazides of, and their acetyl and nitroso-derivatives (BÜLOW), A., i, 54.
 ferric chloride as a test for (ROSENTHALER), A., ii, 765.
 estimation of, in urine (ALBAHARY), A., ii, 579.
Oxalic acid, salts, compounds of, with hydrogen fluoride (WEINLAND and STILLE), A., i, 731.
 double salts with ammonium and bismuth (ALLAN and PHILLIPS), A., i, 732.
 basic bismuth salts (ALLAN), A., i, 731.
 double salts with bismuth and potassium (ALLAN and DELURY), A., i, 731.
 calcium salt, *rôle* of, in plant nutrition (AMAR), A., ii, 505.
 sodium salt, use of, in volumetric analyses (SØRENSEN), A., ii, 684, 750.
 thallium salts (RABE and STEINMETZ), A., i, 146.
 thallium hydrogen salt (MEYER and GOLDSCHMIDT), A., ii, 212.
Oxalic acid, aryl esters (BISCHOFF and v. HEDENSTRÖM), A., i, 26.
 ethyl ester, condensation of, with diacetyl (DIELS), A., i, 400.
 condensation of, with ethylene and trimethylene dianylenes (MICHAEL), A., i, 736.
m- and *p*-nitrophenyl esters (BISCHOFF and v. HEDENSTRÖM), A., i, 27.
 phenyl ester, decomposition of (BISCHOFF and v. HEDENSTRÖM), A., i, 26.
p-tolyl ester (FIRMA RUD. RÜTGERS), A., i, 479, 555.
Oxalic acid, *d*thioli-, sodium salt (AUGER and BILLY), A., i, 310.
Oxalodimolybdic acid (ROSENHEIM and BERTHELM), A., ii, 374.
Oxalomolybdic acid, salts (BAILHACHE), A., i, 66.
Oxaluria (LUZZATO), A., ii, 315.
Oxalyl chloride, ethyl ester, action of, on mixed magnesium organic compounds (GRIGNARD), A., i, 549.
Oxalylbis-*p*-aminobenzoylpyruvic acid, ethyl ester (BÜLOW and NOTTBOHM), A., i, 863.
Oxamic acid, phenylhydrazides of, and their acetyl and nitroso-derivatives (BÜLOW), A., i, 54.
Oxamidcphenylamidine (SANDMEYER and CONZETTI), A., i, 487.
Oxamidi-phenyl-, and -o- and -p-tolylamidines, thio- (SANDMEYER), A., i, 486.

Oxamicphenyl-*o*- and -*p*-tolylamidines, thio- (SANDMEYER and CONZETTI), A., i, 487.

Oxamide, hydroxyl-, acid function of (SCHIFF), A., i, 327.

Oxanil, dithio-, preparation and reactions of (SABANÉEFF and RAKOWSKY), A., i, 814.

*iso***Oxazole** from ethyl *N*-dimethyldicarboxyppuryl-*p*-benzoylpyruvate (BÜLOW and NOTTBORH), A., i, 275, 863.

*iso***Oxazole**, β -nitro-, and its reactions (HILL and HALE), A., i, 401.

Ox-gall, glycocholic acid from (WAHLGREN), A., i, 302.

Oxidation and reduction, theory of some technical processes of (BODLÄNDER), A., ii, 59.

mechanism of induced (LOEVENHART and KASTLE), A., ii, 415.

by chromic acid in presence of other acids (PRUD'HOMME), A., ii, 430.

by electrolytically separated fluorine (SKIRROW), A., ii, 69.

with permanganate, kinetics of (SCHILOFF), A., ii, 720.

by means of permanganates (ULLMANN and UZBACHIAN), A., i, 626.

by means of ozone (HARRIES), A., i, 605, 807; (LUTHER and INGLIS), A., ii, 406.

indirect, by salts of the rare earths (JOB), A., ii, 214.

Auto-oxidation of cerous salts (ENGLER and GINSBERG), A., ii, 599; (BAUR), A., ii, 729.

of some coal tar hydrocarbons (WEGER), A., i, 239.

Oxidation processes, theory of (MANCHOT), A., ii, 151; (MANCHOT and WILHELM), A., ii, 152; (SCHILOFF), A., ii, 276.

α -Oxides, mechanism of the isomerisation of (KRASSUSKY), A., i, 8.

formation of aldehydes and ketones from (KRASSUSKY), A., i, 8.

of olefines, isomeric transformation of, into aldehydes and ketones (MARKOWNIKOFF), A., ii, 200.

Oximes, formation of, from phenylhydrazones (FULDA), A., i, 199.

ebullioscopic behaviour of, in benzene solutions (MAMELI), A., ii, 711.

oxidation of (BAMBERGER and SELIGMAN), A., i, 99.

stereoisomeric, transformation of (FRANCESCONI and PIAZZA), A., i, 835.

electrolytic reduction of, to amines (BOEHRINGER & SÖHNE), A., i, 550.

action of, on thionyl chloride (PAWLEWSKI), A., i, 405.

Oximes, silver and mercury compounds of (FRANCESCONI and PIAZZA), A., i, 835.

test for (WHITELEY), T., 45.

See also Dioximes.

Oximino-. See also the parent Substance, *isonitroso-*.

Oximinocyanooacetic acid, esters, electrical conductivity and optical properties of (MULLER), A., i, 77.

sodium salts, refraction of (MULLER), A., i, 78.

α -Oximino-ketones, characteristic reaction of (WHITELEY), T., 26.

Oxyardisiol (GRESHOFF and SACK), A., i, 508.

Oxycelluloses (VIGNON), A., i, 462.

Oxycodeine and its diacetyle derivative (ACH and KNORR), A., i, 849.

Oxydase from Fungi (CHODAT and BACH), A., i, 219.

Oxydases in cuttle-fish (GESSARD), A., ii, 441.

resolution of so-called, into oxygenases and peroxydases (CHODAT and BACH), A., i, 378.

reaction of, with hydrogen peroxide (GESSARD), A., i, 590.

Oxydihydroquinolines, action of alkalis on (DECKER, ELIASBERG, and WISŁOCKI), A., i, 718.

*endo***Oxy-1:4-diphenyldihydrotriazole** (BUSCH and SCHNEIDER), A., i, 535.

6-Oxy-2-ethylthiopyrimidine and its 4:5-dimethyl derivatives, preparation of (WHEELER and MERRIAM), A., i, 525.

Oxygen, electrolytic development of (COEHN and OSAKA), A., ii, 261.

liquid, vapour pressures of, at temperatures below its boiling point on the constant volume hydrogen and helium scales (TRAVERS, SENTER, and JAQUEROD), A., ii, 9.

rendering active of (ENGLER and GINSBERG), A., ii, 599.

union of, with carbon monoxide, and the drying of gases by cooling (GIRVAN), P., 236.

electrolytic, action of, on ozone (JONES), A., ii, 595.

reaction between phosphorus and (RUSSELL), T., 1263; P., 207.

some cases of the wandering of, in the molecule (LUTZ), A., i, 147.

compressed, impurities of, and the part played by them in combustions in the calorimetric bomb (BERTHELOT), A., ii, 70.

influence of an atmosphere of, on the respiratory exchange (HILL and MACLEOD), A., ii, 30.

Oxygen, influence of high pressure of, on the circulation of the blood (HILL and MACLEOD), A., ii, 30.
influence of compressed air and, on blood gases (HILL and MACLEOD), A., ii, 493.
calorific value of (KRUMMACHER), A., ii, 384.

Oxygen compounds, with iodine, electrochemistry of (MULLER), A., ii, 629.

Oxygen, titration of dissolved, with indigo and hyposulphite solution (WANGERIN and VORLANDER), A., ii, 99.

Oxygenases, resolution of so-called oxygenases into (CHODAT and BACH), A., i, 378.

Oxyhaemoglobin. See under Hæmoglobin.

α -Oxylactones, $C_{17}H_{12}O_5$, and their acyl derivatives, from piperonal and phenylpyruvic acid (ERLENMEYER), A., i, 701.
 $C_{17}H_{14}O_4$, from anisaldehyde and phenylpyruvic acid, and its labile and stable lactones (ERLENMEYER), A., i, 677.
 $C_{19}H_{18}O_3$, and their acyl derivatives, from phenylpyruvic acid and cumene (ERLENMEYER), A., i, 419, 702.
constitution of (ERLENMEYER), A., i, 701.

2-Oxymethylbenziminoazole, 5:7-dibromo- (BACZYŃSKI and v. NIEMEN-TOWSKI), A., i, 124.

6-Oxy-2-methylthiopyrimidine and its 4- and 5-methyl, 4-methyl-5-ethyl, and 4-phenyl derivatives (WHEELER and MERRIAM), A., i, 524.

7-Oxy-2-phenyl-4-(3':5'-dimethoxy-phenyl)-1:4-benzopyranol and its salts (BULOW and RIESS), A., i, 715.

2-Oxypyrimidine, 6-amino-. See Cytosine.

6-Oxypyrimidine, 2-amino-, and its salts, and acetyl and 5-bromo-derivatives (WHEELER and JOHNSON), A., i, 526.

Ozone, formation of (GOLDSTEIN), A., ii, 723.
production of, by high tension and high frequency spirals (GUILLEMOT), A., ii, 538.
solubility, estimation, and interaction of, with hydrogen peroxide (INGLIS), T., 1010; P., 197.
oxidation by means of (HARRIES), A., i, 605, 807; (LUTHER and INGLIS), A., ii, 406.
action of, on carbon monoxide (WATERS ; JONES), A., ii, 594.

Ozone, action of, on the diphtheria bacillus and its toxin (ARLOING and TROUDE), A., ii, 318.
estimation of (LADENBURG), A., ii, 237.
Ozonic acid and hydrogen tetroxide (BACH), A., ii, 17.

P.

Palabienic acid, **Palabietic acid** and its salts, **Palabietinolic acids**, and **Paloresen** (TSCHIRCH and KORITSCHONER), A., i, 106.

Palacheite from Knoxville, California (EAKLE), A., ii, 490.

Palladium, liquid hydrosol of (GUTBIER), A., ii, 82.

Palmitic acid, lead salt (*lead tetrapalmitate*) (COLSON), A., i, 601.

Palmitic acid, thiol- (AUGER and BILLY), A., i, 310.

Palmitins, synthesis of (GUTH), A., i, 226.

α -Palmityldistearin (GUTH), A., i, 227; (KREIS and HAFNER), A., i, 457.

β -Palmityldistearin (KREIS and HAFNER), A., i, 457, 788.

Palms, composition of the reserve carbohydrates of the albumen of some (LIÉNARD), A., ii, 36.

Pancreas, influence of the, on the combustion of muscular carbohydrate (COHNHEIM), A., ii, 738.
uracil from autolysis of the (LEVEENE), A., ii, 438.
end-products of the auto-digestion of the (KUTSCHER and LOHMANN), A., ii, 670, 737.

Pancreatic cyst, composition of a liquid from a (ALOY and RISPAL), A., ii, 444.
juice, human (SCHUMM), A., ii, 32.
proteolytic activities of (BAYLISS and STARLING), A., ii, 668.

Pandermite from Sultan Tchair, Asia Minor (BUTTGENBACH), A., ii, 157.

Pannarol (HESSE), A., i, 705.

Papaveraldoxime (PICTET and KRAMERS), A., i, 358.

Papaverine, ψ -**Papaverine**, and **Papaveramine** and their salts (HESSE), A., i, 773.

Papaverine hydroferrocyanide (GRESHOFF), A., i, 848.
nitroso-, and its salts (PICTET and KRAMERS), A., i, 358.

Paracasein. See under Casein.

Paraffin, action of alkalis on (JONES), A., ii, 143.

Paraffin, solid, residual conductivity and ionisation of, under the influence of radium radiation (BECQUEREL), A., ii, 465.

Paraformaldehyde. See under Formaldehyde.

Paraldehyde. See under Acetaldehyde.

Pararosaniline. See under Rosaniline.

Parasaccharin, preparation and oxidation of (KILIANI and NAEGELL), A., i, 10.

Paris green, estimation of arsenious oxide in (HAYWOOD), A., ii, 754.

Parthenogenesis, artificial (LYON), A., ii, 558; (LOEB), A., ii, 737.

in star-fish, carbon dioxide as an agent in producing (DELAGE), A., ii, 162, 737.

Passion flower. See *Ophiocaulon Firin-galavense*.

Pasteur's reaction (SKRAUP), A., i, 649.

Peas, experiments on, in water culture (GOLDING), A., ii, 748.

Peat molasses as food for horses (GRANDEAU and ALEKAN), A., ii, 96.

Pelagosite from the island of Tremiti (SQUINABOL and ONGARO; DE GÖTZEN), A., ii, 27.

Penta-acetoxybrazan, 2:5:7:8:10- (v. KOSTANECKI and LLOYD), A., i, 646.

Penta-acetylglucosamic nitrile (NEUBERG and WOLFF), A., i, 74.

Pentabenzoyltannic acid (VOURNASOS), A., i, 95.

Pentamethoxybrazan, 1:2:5 (or 10); 7:8- (v. KOSTANECKI and ROST), A., i, 646.

2:5:7:8:10- (v. KOSTANECKI and LLOYD), A., i, 646.

Pentamethylene bromide, action of water on (HOCHSTETTER), A., i, 305.

Pentamethylenecarboxylic acid, menthyl ester, and its rotation (RUPE and LOTZ), A., i, 566.

Pentane, amino-. See Amylamine.

2:4-diamino- (TAFEL and PFEFFERMANN), A., i, 288.

$\alpha\delta$ -dihydroxy-, oxide and chlorhydrin of (POSSANNER VON EHRENTHAL), A., i, 674.

Pentane (β -methylbutane), γ -chloro- β -nitroso-; polymerism and desmotropism of (SCHMIDT and AUSTIN), A., i, 2.

$\beta\gamma$ -di- and $\beta\gamma\delta$ -tri-nitro- (PONI and COSTACHESCU), A., i, 596.

$\beta\gamma\gamma$ -trinitro- (SCHMIDT and AUSTIN), A., i, 3.

isoPentane, products of the slow combustion of (v. STEPSKI), A., i, 61.

isoPentane, action of nitric acid of different concentrations under pressure on (PONI and COSTACHESCU), A., i, 596.

tert.-Pentane, nitroso- (BAMBERGER and SELIGMAN), A., i, 322.

cycloPentane compounds, formation of (KÖTZ and SPIESS), A., i, 742.

Pentanedicarboxylic acids. See:— Dimethylglutaric acids.
Methyladipic acids.
Trimethylsuccinic acid.

Pentanetetracarboxylic acid, dibromo-, ethyl ester (GREGORY and PERKIN), T., 782; P., 163.

cycloPentane-1:1:2:2-tetracarboxylic acid, ethyl ester (KÖTZ and SPIESS), A., i, 742.

Pentanetricarboxylic acid. See $\alpha\beta$ -Dimethylpropanetricarboxylic acid.

cycloPantanone, compounds of, with aromatic aldehydes (MENTZEL), A., i, 497.

Pentene ring (AUERBACH), A., i, 412.

Pentenedicarboxylic acids. See:— Dimethylglutaconic acids.
Teraconic acid.

Pentenoic acids (*angelic* and *tiglic* acids), preparation of (BLAISE), A., i, 507.

Pentenoic acids, menthyl esters, and their rotation (RUPE and ZELTNER), A., i, 566.

Penthiazoline derivative, $C_{13}H_{18}N_2S$, from hydroxy- β -isohexylamine phenyl-thiocarbamide (KOHN and LINDAUER), A., i, 73.

Pentosans, digestibility of (WEISER), A., ii, 507.

estimation of (TOLLENS), A., ii, 46.

estimation of starch in presence of (WEISER and ZAITSCHEK), A., ii, 225, 515.

Pentoses, influence of putrefaction on the amount of, in animal organs (EBSTEIN), A., ii, 92.

new bases from (ROUX), A., i, 463.

estimation of (TOLLENS), A., ii, 46, 247; (JÄGER and UNGER), A., ii, 187; (UNGER and JÄGER), A., ii, 456.

Peppermint oil from Piedmont (ZAY), A., i, 355.

Pepsin-hydrochloric acid, effect of heating on the solubility of nitrogenous food constituents in (VOLHARD), A., ii, 680.

Pepsinopeptides (BORKEL), A., i, 783.

Pepsins, commercial, presence of small quantities of trypsin in (BOURQUELOT and HÉRISSEY), A., i, 376.

Peptones (SIEGFRIED), A., i, 782.

Peracids, catalysis of salts of (PISSARJEWSKY), A., ii, 66, 375.
 organic, hydrolysis of (CLOVER and RICHMOND), A., i, 396.
 See also under the parent Acids.

Percarbonic acid. See under Carbon.

Perchloric acid. See under Chlorine.

Perchromic acid. See under Chromium.

Percolumbic acid (*perniobic acid*) (MELIKOFF and KASANEZKY), A., ii, 734.

Perilla oil (WIJS), A., i, 602.

Period of induction. See Affinity.

Periodic acid. See under Iodine.

Periodic regularity of the elements, attempt to explain physically (BATSCHINSKI), A., ii, 416.

Perniobic acid. See Percolumbic acid.

Peroxides (TANATAR), A., ii, 539.
 function of, in cell-life (CHODAT and BACH), A., i, 219, 378; (BACH and CHODAT), A., i, 377, 671.
 organic, hydrolysis of (CLOVER and RICHMOND), A., i, 396.
 detection of, in ether (JORISSEN), A., ii, 579.

Peroxydases (BACH and CHODAT), A., i, 377; (CHODAT and BACH), A., i, 378.

Peroxylaminesulphonates (*sulphazilates*) (HAGA), P., 281.

Peroxylaminesulphonic acid (DIVERS), P., 283.

Persulphuric acid. See Caro's acid and under Sulphur.

Peruranates. See under Uranium.

Pervanadic acid. See under Vanadium.

Petit grain oil (SCHIMMEL & Co.), A., i, 186; (WALBAUM and HÜTHIG), A., i, 506.

Petition to the Society, P., 71.

Petroleum, Beaumont, free sulphur in (THIELE), A., ii, 83.
 Galician, nitration of the low boiling fractions of (ZALOZIECKI), A., i, 616.
 Roumanian, composition of (PONI), A., i, 593.

Petroleums, estimation of sulphur in (v. KONEK), A., ii, 572.

Phænogams, production of alcohol in (TAKAHASHI), A., ii, 170.

Phase rule and Phases. See Equilibrium.

Phellandrene nitrites, reduction of (WALLACH and BOCKER), A., i, 105.

Phellandrenes, *n*- and ψ -, and their dibromides (SEMMLER), A., i, 641; (KONDAKOFF), A., i, 845.

Phenacylurethane (DIELS), A., i, 325.

6-Phenacyl-5-benzylcyclopentanone and its monoxime (STOBBE and VOLAND), A., i, 115.

3-Phenacyl-2:5-diphenylfuran and the action of hydrazine hydrate on (PAAL and SCHULZE), A., i, 710.

Phenacylnaphthalimidine and its acetyl and methyl derivatives (ZINK), A., i, 172.

γ -Phenacyl- γ -phenylglutaric acid and its salts (WERDERMANN), A., i, 421, 423.

2-Phenacyltetrahydroisoquinoline and its 2-acetic acid, ethyl ester, bromide of (WEDEKIND and ÖECHSLER), A., i, 517.

9:10-Phenanthracarbazole and 9: ω -Phenanthra-1':2'- and -2':1'-naphthacarbazoles (JAPP and MAITLAND), T., 275; P., 19.

Phenanthrene derivatives, physiological action of (BERGELL and PSCHORR), A., ii, 502.

Phenanthrene, 9-amino-, and its salts and acyl derivatives (SCHMIDT and STROBEL), A., i, 691.
 9-amino-10-hydroxy-, and its hydrochloride, preparation of (SCHMIDT), A., i, 557.
 9-nitro-, and its reduction products (SCHMIDT and STROBEL), A., i, 691.

9-Phenanthreneazo- β -naphthol (SCHMIDT and STROBEL), A., i, 692.

Phenanthrene carboxylic acids, 3:2- and 2:3-hydroxy-, and their salts, acetyl derivatives and methyl esters (WERNER and KUNZ), A., i, 173.

Phenazine, diamino-, and 3-amino-2-hydroxy-, and its acetyl derivatives (ULLMANN and MAUTHNER), A., i, 199.

Phenazonium methyl nitrate, 2:3-diamino- (ULLMANN), A., i, 395.

Phenetole, aldoximation of, by means of mercury fulminate and aluminium oxychloride (SCHOLL and KREMPER), A., i, 348.

Phenetole, 2:5-dibromo-4- and -6-nitro- (JACKSON and CALHANE), A., i, 159.
 2:3:4-tribromo-6-nitro- (JACKSON and FISKE), A., i, 689.

iso-Pheno-1:3:4-diazosulphonine (EK-BOM), A., i, 411.

Phenocycloheptene (KIPPING and HUNTER), T., 246; P., 11.

Phenol, condition diagram of (TAMMANN), A., ii, 15.
 viscosity of, in the liquid state (SCARPA), A., ii, 640.
 action of phosphorus on (WICHELHAUS), A., i, 818.
 compound of, with ammonia and nickel cyanide (HOFMANN and HÖCHTLEN), A., i, 469.

Phenol, *o*-amino-, *N*-acetyl derivative of, and its isomeride (LEES and SHEDDEN), T., 755; P., 132.
N-formyl derivative of (BAMBERGER), A., i, 634.
p-amino-, action of carbonyl chloride on (SCHÖNHERR), A., i, 477.
bromo-nitro-derivatives (JACKSON and FISKE), A., i, 688.
2:5-dibromo-6-nitro-, and its barium salt (JACKSON and CALHANE), A., i, 160.
o-chloro-, preparation of (HAZARD-FLAMAND), A., i, 622.
2:3:4:5-tetrachloro-, preparation of (BARRAL and GROSFILLEX), A., i, 163.
3-chloro-4-amino-, and 3-chloro-4-nitro- (CHEMISCHE FABRIK GRIESHEIM-ELEKTRON), A., i, 817.
3:4-diiodo-, and its benzoate (BRENANS), A., i, 478.
3:5-diiodo-, and its ethyl ether and acetate (BRENANS), A., i, 336.
nitro-derivatives, constitution of (HIRSCH), A., i, 623.
m-nitro-, electrolytic reduction of, in alkaline and in acid solutions (KLAPPERT), A., i, 85.
p-nitro-, as indicator (GOLDBERG and NAUMANN), A., ii, 684.
isomeric dinitro-derivatives, separation of, and their physical properties (HOLLEMAN and WILHELMY), A., i, 336.
2:4:6-trinitro-. See Picric acid.
3-nitro-4-amino- (FICI), A., i, 162.
Phenol bromide, tribromo-, velocity of transformation of, into tetrabromophenol (BELZER), A., ii, 415.
Phenols, new method of forming (BODROUX), A., i, 249.
dependence of the acidity of, on their composition and structure (RAIKOW), A., i, 754.
freezing point curves of binary mixtures of amines and (PHILIP), T., 814; P., 143.
ebullioscopic behaviour of, in benzene solutions (MAMELI), A., ii, 711.
influence of substituents in the nucleus on the stability of, towards carbon dioxide at the ordinary temperature (RAIKOW and MOMTSCHILOW), A., i, 162.
condensation of, with esters of unsaturated acids (RUHEMANN), T., 1130; P., 201.
action of benzenesulphinic acid on (HINSBERG), A., i, 251.
condensation of, with benzyl chloride in presence of metals (BAKUNIN), A., i, 819.

Phenols, action of chloroform on (AUWERS and KEIL), A., i, 100.
condensation of, with dinitriles (v. MEYER), A., i, 482.
decomposition of diazonium salts with (NORRIS, MACINTYRE, and CORSE), A., i, 372.
compounds of, with phosphoric acid (HOOGEWERFF and VAN DORP), A., i, 170.
microchemical detection and discrimination of the (BEHRENS), A., ii, 455.
estimation of, in drugs (BARRAL), A., ii, 338.

Phenols, *p*-alkylated, behaviour of, towards Caro's reagent (BAMBERGER), A., i, 624.
free and united with sulphur, in urine (MONFET), A., ii, 671.

Phenolaminoacetamides and their ethers (LUMIÈRE and PERRIN), A., i, 832.

Phenolantraquinone and its diacetyl and dibenzoyl derivatives (SCHARWIN and KUSNEZOF), A., i, 640.

Phenol-2-azo- β -naphthol, 3:5-dibromo- and chloro- (ORTON), T., 804; P., 162.

Phenol-2- and -4-azo- β -naphthols, *o*- and *m*-chloro- (v. NIEMENTOWSKI), A., i, 133.

Phenol- β -naphthoisatin and thio- (WICHELHAUS), A., i, 632.

Phenolphthalein as indicator (SCHMATOLLA), A., i, 95.
behaviour of, towards normal and acid alkali carbonates (GIRAUD), A., ii, 543.

Phenolphthalein, tetraiodo-, preparation of (KALLE & Co.), A., i, 832.

Phenomorpholone, electrolytic reduction of (LEES and SHEDDEN), T., 754; P., 132.

Pheno-tetrazole- and -triazole-carboxylic acids (MARCKWALD and RUDZIK), A., i, 515.

Phenoxyazine, amino-derivatives, and their chlorides and dichromates (KEHRMANN and SAAGER), A., i, 280.
nitro-derivatives, and their salts (KEHRMANN and SAAGER), A., i, 280.

Phenoxides, *o*-, *m*-, and *p*-nitro-, alkali relations between colour, composition, and constitution of the (FRAZER), A., i, 816.

Phenoxyacetic chloride, action of, on benzene and its derivatives (STOERMER and ATENSTADT), A., i, 41.

Phenoxyacetone, condensation of, with benzaldehyde (STOERMER and WEHLN), A., i, 40.

Phenoxyacetylene and its metallic derivatives (SLIMMER), A., i, 249.

α-Phenoxyethylene and its ω -bromo-derivatives (SLIMMER), A., i, 249.

Phenoxyfumaric acid and its ethyl ester (RAP), A., i, 49.

Phenoxyethyl anisyl, p-ethoxyphenyl, and 1:3-dimethoxyphenyl ketones and the oximes of the anisyl and *p*-ethoxyphenyl compounds (STOERMER and ATENSTADT), A., i, 42.

α-Phenoxypropionyl chloride (STOERMER and ATENSTADT), A., i, 42.

γ-Phenoxypropyl iodide and the action of sodium on (HAMONET), A., i, 251.

Phenyl acetylaminodithiolcarbonate (SPAHR), A., i, 478.

benzyl ethers, substituted (FARBWERKE VORM. MEISTER, LUCIUS, & BRUNING), A., i, 817.

carbonate (BISCHOFF and v. HEDENSTRÖM), A., i, 26.

transformations of (FOSSE), A., i, 485.

ethers (COOK and FRARY), A., i, 163; (COOK and EBERLY), A., i, 250; (COOK), A., i, 337; (THOMS), A., i, 415, 558.

ethyl and ethylene ethers, bromo- and chloro-derivatives (STOERMER and GÖHL), A., i, 848.

p-iodofluoride, bromo- (WEINLAND and STILLE), A., i, 748.

methyl and ethyl ethers, 5-chloro-2-mono- and 2:4:6-tri-nitro- (BLANKSMA), A., i, 158.

α - and β -naphthyl ethers (HONIGSCHMID), A., i, 165.

o-tolyl ether, *p*-amino-, and its salts (COOK and EBERLY), A., i, 250.

p-nitro-, and its **sulphonic acid** and its salts (COOK and EBERLY), A., i, 250.

o-tolyl ether, *dinitro-* (COOK and EBERLY), A., i, 251.

m-tolyl ether, *p*-amino-, and its salts (COOK and FRARY), A., i, 163.

p-nitro-, and its nitro-derivative and **sulphonic acid** and its salts (COOK and FRARY), A., i, 163.

p-tolyl ether, *p*-amino- and its salts, and nitro-derivatives (COOK), A., i, 337.

p-nitro-, and its **sulphonic acid** and its salts (COOK), A., i, 337.

p-tolyl sulphide, amino-, and its salts and acyl and aldehydic derivatives (v. MEYER and HEIDUSCHKA), A., i, 808.

Phenylacetaldioxime, formation of (BOUVEAULT and WAHL), A., i, 616.

Phenylacetamide, *N*-benzoyl derivative (WHEELER, JOHNSON and MCFARLAND), A., i, 859.

Phenylacetamide, *p*-chloroisooxotroso- (ZIMMERMANN), A., i, 92.

Phenylacetic acid, dithio- (HOUBEN and KESSELKAUL), A., i, 42.

Phenylacetonitrile (*benzyl cyanide*), action of cyanogen bromide on (v. BRAUN), A., i, 697.

Phenylacetonitrile (*benzyl cyanide*), *p*-chloro-, and its condensation with aromatic esters in presence of sodium ethoxide (v. WALTHER and HIRSCHBERG), A., i, 494.

p-nitro-, *p*-methylcyanoethylamino-phenylimide of (SACHS and KRAFT), A., i, 335.

isonitroso-, and its salts and chloro- and nitro-derivatives, and their methyl ethers, benzoates, and additive compounds (ZIMMERMANN), A., i, 91.

Phenylaceturic acid, ethyl ester, and nitrile (KLAGES and HAACK), A., i, 560.

1-Phenylacetylamo-2:5-dimethylpyrrole and its **3-4-dicarboxylic acid** (BULOW and v. KRAFFT), A., i, 196.

Phenylacetyl-*p*-chlorobenzyl cyanide and its oxime and phenylhydrazone (v. WALTHER and HIRSCHBERG), A., i, 495.

Phenylacetylchlorophenylacetic acid, ethyl ester (v. WALTHER and HIRSCHBERG), A., i, 495.

Phenylacetylene, *p*-nitro- (WIELAND), A., i, 767.

Phenylalanine, production of homogentisic acid from (FALTA and LANGSTEIN), A., ii, 496.

N-Phenyl-S-allyldithiourethane (v. BRAUN), A., i, 15.

Phenylaminocrotonatebenzylideneacetoo-acetic acid, ethyl ester (KNOVENAGEL, ERLER, and REINECKE), A., i, 652.

Phenyltetraaminoditolylmethane *p*-amino-, and its acetyl derivative and *p*-nitro- (ULLMANN and GRETHE), A., i, 447.

Phenylaminoglyoxime peroxide (WIELAND), A., i, 770.

α-Phenyl-2-amino-3-hydroxy-4-methoxy-cinnamic acid (PSCHORR and VOGTHERR), A., i, 184.

Phenylamino-. See also Anilino-.

Phenylamylid Sulphone-ethane and -methane (POSNER and HAZARD), A., i, 243.

β-Phenyl-β-amylene and its dibromide (KLAGES and HAHN), A., i, 19.

3-Phenyl-5-amylpyrazole (MOUREU and BRACHIN), A., i, 581.

Phenylanisylacetylene (MOUREU and BRACHIN), A., i, 581.

Phenylanthranilic acid and *m*-nitro- (ULLMANN), A., i, 692.

Phenylazo-. See also Benzeneazo-
Phenylazoacetaldoxime (BAMBERGER and PEMSEL), A., i, 283, 284.

Phenylazoacetoacetic acid, and *p*-bromo- and *p*-chloro-, methyl esters (LAPWORTH), T., 1120; P., 149. ethyl ester, action of *p*-nitrobenzaldehyde on (PRAGER), A., i, 540.

Phenylazocynoacetic acid, *p*-bromo-, methyl ester (BOWACK and LAPWORTH), P., 23.

Phenylazocynoacetic acids, α - and β -, ethyl esters (WEISSBACH), A., i, 541.

Phenylazoethane, reactions of (BAMBERGER and PEMSEL), A., i, 282.

Phenylazoiimide. See Triazobenzene.

Phenylazo-*p*-nitrobenzylideneacetone (PRAGER), A., i, 540.

Phenylbenzylamidine, *as*- and *s*-acyl derivatives of (WHEELER, JOHNSON, and MCFARLAND), A., i, 859.

Phenylbenzylamidine, *p*-chloro-, and its salts, acyl, carbamide, and thiocarbamide derivatives, and thiocyanate, and the action of picryl chloride and of hydroxylamine hydrochloride on (v. WALTHER), A., i, 582.

Phenylbenzylaminoxime, *p*-chloro-, and its salts (v. WALTHER), A., i, 583.

Phenylbenzylhydrazidine and its hydrochloride (VOSWINCKEL), A., i, 777.

2-Phenylbenziminoazole, synthesis of (PAWLEWSKI), A., i, 661.

***o*-Phenylbenzoic acid**, synthesis of (WEGER and DÖRING), A., i, 410.

2-Phenyl-1:4-benzopyranol-4-carboxylic acid, 7-hydroxy-, and its lactone and ester, and diacetate of the ester (BÜLOW and WAGNER), A., i, 647.

Phenylbenzotriazole, 2-*p*-hydroxy-(ELBS and KEIPER), A., i, 662.

1-Phenylbenzoxazole, 5-hydroxy- (HENRICH and WAGNER), A., i, 89.

Phenylbenzylamylsulphonphenylmethane (POSNER and HAZARD), A., i, 243.

Phenyl-benzyl- and -methylbenzyl-benzylamidines (LANDER), T., 327; P., 16.

Phenylbenzyl-5-benzylidene- ψ -thiohydantoin (WHEELER and JAMIESON), A., i, 521.

Phenylbenzyldisulphone-dimethylmethane, -ethane, -methane, and -phenylmethane (POSNER and HAZARD), A., i, 243.

Phenylbenzylidenemethylpyrazolone, condensation of, with ethyl acetooacetate and with deoxybenzoin (KNOVENAGEL and HEEREN), A., i, 661.

3-Phenyl-5-benzylidenerhodanic acid (ANDREASCH and ZIPSER), A., i, 856.

Phenylbenzylmethyldihydrotriazole, *endo*-thio- (BUSCH and SCHNEIDER), A., i, 534.

Phenylbenzylthiocarbamic acid, ammonium salt (HELLER and MICHEL), A., i, 477.

N-Phenyl-S-benzylthiourethane (v. BRAUN), A., i, 15.

Phenylbromo-*o*-hydroxytolyl and bromo-*o*-hydroxy-*p*-xylyl ketones (BARTOLOTTI and LINARI), A., i, 177.

Phenyl bromo-4-hydroxy-*o*-xylyl ketone and its oximes (BARTOLOTTI and LINARI), A., i, 177.

Phenylbutadiene di- and tetra-bromides (RIIBER), A., i, 471.

α -Phenylbutane, γ -amino-, and its derivatives (HARRIES and DE OSA), A., i, 815.

α Phenyl- α -butylene, γ -amino-, and its acyl derivatives (HARRIES and DE OSA), A., i, 815.

and its dibromide and α -chloro- β -bromo- (KUNCKELL and SIECKE), A., i, 331.

β -Phenyl- β -butylene (KLAGES and HAHN), A., i, 19.

Phenylbutylenes, isomeric (HARRIES and DE OSA), A., i, 815.

Phenylbutyl-1:3- β -naphthisooxazines, 2:4- and 4:2- (BETTI), A., i, 510.

Phenylbutyric acid, γ -amino-, and its hydrochloride and lactam (KÖHL), A., i, 234.

Phenylbutyric-*o*-carboxylic acid (KIPPING and HUNTER), T., 249; P., 11.

Phenylbutyrolactone, α -hydroxy-, and its conversion into β -benzoylpropionic acid (ERLENMEYER), A., i, 32.

Phenylcarbamidogalactamine pentaphenylcarbamate (ROUX), A., i, 73.

Phenylcarbamidoleucylglycylglycine (FISCHER), A., i, 800.

Phenylchloromethylenecamphor and the action of aniline and alcoholic ammonia on (FORSTER), T., 104.

Phenyl-6-chloro-1-tolyl-3-thiocarbamide (BAMBERGER and DE WERRA), A., i, 22; (BAMBERGER, TER-SARKISSJANZ, and DE WERRA), A., i, 25.

3-Phenyl-5-cinnamylidenerhodanic acid (ANDREASCH and ZIPSER), A., i, 856.

Phenylisocrotonamide (KÖHL), A., i, 234.
Phenyldi-p-anisylcarbinol and its derivatives (v. BAEYER, VILLIGER, and HALLENSLEBEN), A., i, 812.
Phenyldicamphorylcarbinol (MALM-GREN), A., i, 711.
Phenyldiethylammonium periodides (STRÖMHLOM), A., i, 462.
Phenyldiethylcarbinol, *o*-hydroxy-, and its methyl ether (MOUNIÉ), A., i, 482.
Phenyl- $\alpha\beta$ -diethylhydrazine and its benzoyl derivative and nitrosoamine (BAMBERGER and TICHWINSKY), A., i, 131; (TICHWINSKY), A., i, 442.
Phenyldiethyltriazine. See Ethylaniline.
1-Phenyl-3:5-diethylurazole (WHEELER and JOHNSON), A., i, 693.
7-Phenyldihydro- β -naphthaacridine and *m*- and *p*-nitro- (HAASE), A., i, 366; (ULLMANN and FETVADJIAN), A., i, 521.
Phenyldi-*o*-hydroxybenzilosazones, *p*-bromo-, α - and β -, and their acetyl derivatives (BILTZ and SIEDEN), A., i, 120.
9-Phenyl-2:7-dimethylacridine and its hydride and *m*- and *p*-amino- and *m*- and *p*-nitro- (ULLMANN and WEINTRAUB), A., 519.
Phenyldimethyl-*m*-biscyclohexenone and its dioxime and phenylhydrazone (KNOEVENAGEL), A., i, 637.
Phenyl-B-dimethylnaphthasafranine, *p*-amino- (FISCHER and HEPP), A., i, 60.
1-Phenyl-3:5-dimethylpyrazole 4-nitro- and 4-nitroso- (WOLFF, BOCK, LORENZT, and TRAPPE), A., i, 210.
1-Phenyl-4:4-dimethyl-3:5-pyrazolidone (PERKIN), T., 1225.
1-Phenyl-2:3-dimethyl-5-pyrazolone-di-acetic and -dipropionic acids, amino- (FARBEWERKE VORM. MEISTER, LUCIUS, & BRUNING), A., i, 866.
1-Phenyl-3:5-ditolyltriazoles, bromo- and chloro-derivatives, synthesis of (v. WALTHER and KRUMBIEGEL), A., i, 661.
Phenylenebisaminoacetamides, *m*- and *p*- (LUMIÈRE and PERRIN), A., i, 832.
***p*-Phenylenebis diazosulphide** (GREEN and PERKIN), T., 1205; P., 206.
***o*-Phenylenediamine**, oxidation of (ULLMANN and MAUTHNER), A., i, 199.
3:4:5-tribromo- (JACKSON and FISKE), A., i, 690.
***m*-Phenylenediamine**, 2:4-*dibromo-6-nitro-* (JACKSON and FISKE), A., i, 690.
4-nitro- (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 54.
2:4:6-*trinitro-* (BLANKSMA), A., i, 158.

***p*-Phenylenediamine**, 2:5-*dibromo-*, and its hydrochloride (JACKSON and CALHANE), A., i, 159.
Phenylenediamines, *o*-, *m*-, and *p*-, interaction of, with malonic, succinic, and isosuccinic acids (MEYER), A., i, 442.
interaction of, with phthalic and succinic anhydrides (MEYER), A., i, 443.
***p*-Phenylenediamine-di- and -tetra-thiosulphonic acids** and their reactions (GREEN and PERKIN), T., 1201; P., 206.
***m*-Phenylene-*s*-diethyl diamine and *s*-diethyl nitroamine, trinitro-** (BLANKSMA), A., i, 158.
***m*-Phenylene-*N*-dimethyl diamine, 2:4:6-trinitro-** (BLANKSMA), A., i, 158.
***p*-Phenylene-*N*-dimethyl diaminedithiosulphonic acid** (GREEN and PERKIN), T., 1212.
***m*-Phenylenedimethyl dinitroamine**, 4-bromo-2:6-dinitro- (BLANKSMA), A., i, 333.
Phenylene-2:3-naphthylene oxide (bran) and 2:7:8-5-tetrahydroxy-, and its tetracetyl derivative (v. KOSTAN-ECKI and LLOYD), A., i, 645.
 α -Phenylethane, α -nitro-, and its ψ -nitro-, and ψ -nitro- (BAMBERGER and SELIGMAN), A., i, 324.
Phenylethanol-carbamide and -thiocarbamide (KNORR and RÖSSLER), A., i, 465.
Phenyleth enyl-mono- and -di-phenylhydrazidines (VOSWINCKEL), A., i, 778.
Phenylethoxyglyoxime peroxide (WIELAND), A., i, 770.
 β -Phenylethyl alcohol and its acetate (GRIGNARD), A., i, 819.
 α -Phenylethylamine, oxidation of (BAMBERGER and SELIGMAN), A., i, 324.
 α -Phenylethylamines, *d*- and *l*-, salts of (HUNTER and KIPPING), T., 1147; P., 203.
Phenylethylbenzylamidine (LANDER), T., 320; P., 15.
Phenylethyl disulphone-ethane, -methane, -dimethylmethane and -phenylmethane (POSNER and HAZARD), A., i, 248.
Phenylethylglycollic acid, and its ethyl ester (GRIGNARD), A., i, 32.
 $\alpha\alpha$ -Phenylethylhydrazine and its benzoyl derivative (BAMBERGER and TICHWINSKY), A., i, 131; (TICHWINSKY), A., i, 442.
Phenyl ethyl ketone. See Propiophenone.

2-Phenyl-4-ethylsemicarbazide, and its *1-dithiocarboxylic acid*, methyl ester (BUSCH and FREY), A., i, 538.

Phenylethyl- ψ -dithiobiurets (JOHNSON and BRISTOL), A., i, 751.

Phenylethyl-*o*- and -*p*-toluidines, 2:4-dinitro- (REITZENSTEIN), A., i, 816.

β -Phenylglutaric acid, nitro-derivatives, and their isomerides (SCHROETER and MEERWEIN), A., i, 831.

Phenylglycinamide, *p*-chloro- (LUMIÈRE and FERRIN), A., i, 832.

Phenylglycine, behaviour of, in the organism (ROSENFIELD), A., ii, 743.

Phenylglycine-*o*-carboxylic acid, preparation of (FARBEWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 754, 832.

Phenylglycine-*o*-carboxylic acid, esters, acyl derivatives (CHEMISCHE FABRIK VON HEYDEN), A., i, 487.

Phenylglycine-*m*-carboxyldiamide (LUMIÈRE and PERRIN), A., i, 832.

Phenylglycinethioamide-*o*-carboxylic acid, esters (BADISCHE ANILIN- & SODA-FABRIK), A., i, 627.

Phenylglycinyl ethyl urethane, *o*-chloro- (FRERICHS and BREUSTEDT), A., i, 18.

Phenylglycollic acid (OECHSNER DE CONINCK and RAYNAUD), A., i, 458 ; (OECHSNER DE CONINCK), A., i, 629. methylene derivative of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 149.

5-Phenylglyoxaline and its platinichloride (PINNER), A., i, 123.

Phenylglyoxyldicarboxylic acid, bromo- (GRAEBE and GUINSBOURG), A., i, 409.

Phenylguanidine, cyano- (WHEELER and JAMIESON), A., i, 751.

***o*-Phenylguanidinebenzoic acid** (WHEELER, JOHNSON, and McFARLAND), A., i, 859.

1-Phenyl-3-hexahydrophenyltriazole, 5-hydroxy-, and its acetate (RUPE and METZ), A., i, 536.

1-Phenyl-3-hexahydrophenyl-5-triazolone-3-carboxylamide (RUPE and METZ), A., i, 536.

γ -Phenylhyantoic acid, and its ethyl ester, and the action of sodium ethoxide on the ester (BAILEY), A., i, 129.

β -Phenylhydantoin and its bromo-, chloro-, and γ -alkyl compounds and the bromo- derivatives of the alkyl compounds (FRERICHS and BREUSTEDT), A., i, 16.

Phenylhydrazidimethylmalonic acid and bromo-, methyl esters (PERKIN), T., 1225.

Phenylhydrazine, action of, on acetic, benzoic, and isovaleric esters (BAIDAKOWSKY and SLEPAKA), A., i, 441. action of, on alkyl bromides and iodides (ALLAIN LECANU), A., i, 778. action of boron trichloride on (ESCALES and KLING), A., i, 120. action of, on formic esters (BAIDAKOWSKY and REFORMATSKY), A., i, 441. reaction of, with ketones (PETRENKO-KRITSCHENKO and ELTSCHANINOFF), A., i, 440. action of, on the oxygen compounds of selenium and tellurium (GUTBIER), A., i, 120. acetyl derivative of (BAIDAKOWSKY and SLEPAKA), A., i, 441. compound of, with triphenylcarbinol (TSCHITSCHIBABIN), A., i, 88. estimation of, in hydrazones and osazones (GRIMALDI), A., ii, 342.

Phenylhydrazine, *o*-cyano-, and its salts and acyl derivatives (GABRIEL), A., i, 445.

4-Phenylhydrazine-2:6-dimethylnicotinic acid and anhydride and its methyl derivative (MICHAELIS and V. AREND), A., i, 292.

Phenylhydrazonecyanoacetic acid, ethyl ester, and its acetyl derivatives (WEISSBACH), A., i, 541.

Phenylhydrazones, conversion of, into oximes (FULDA), A., i, 199.

9-Phenyl-1:2:2':1'-hydronaphthacridine and its salts (ULLMANN, FETVADJIAN, and RACOVITZA), A., i, 521.

Phenyl- Δ^1 -hydrophthalamic acid and *p*-hydroxy- (PIUTTI and ABATTI), A., i, 424.

Phenylhydroxyglyoxime peroxide (WIELAND), A., i, 770.

Phenylhydroxylamine, behaviour of, towards hydroxylamine and air (BAMBERGER), A., i, 84.

Phenyl-*a*-hydroxynaphthylmethane, *p*-amino-, and its acetyl derivative (FRIEDLÄNDER and V. HÖRVATH), A., i, 253.

Phenylindazole from benzene-*o*-azobenzyl alcohol (FREUNDLER), A., i, 585.

Phenyliodomethylthiolphenyl-*p*-tolylthiodiazoline (BUSCH and BLUME), A., i, 535.

Phenylitaconic acid and its methyl ester (HECHT), A., i, 700.

Phenyllactyl methyl ketone, *op*-*dinitro*, and its phenylhydrazone (FRIEDLÄNDER and COHN), A., i, 264.

6-nitro-3-amino-, *N*-acetyl derivative (FRIEDLÄNDER and FRITSCH), A., i, 347.

Phenyl- $\alpha\alpha'$ -lutidylalkine, *m*-nitro. See Dihydrostyryl-6-methylpyridine, 2-*m*-nitro- α -hydroxy-.

Phenylmagnesium bromide, action of carbon dioxide on (SCHROETER), A., i, 821.

action of selenium and of sulphur on (TABOURY), A., i, 748.

p-bromo- and *p*-chloro- (BODROUX), A., i, 592.

Phenylmethanes, their carbinols and chlorides, phenyl-substitution in the (SCHMIDLIN), A., ii, 530.

3-Phenyl-5-*p*-methoxybenzylidenerhodanic acid (ANDREASCH and ZIPSER), A., i, 856.

Phenylmethoxyglyoxime peroxide (WIELAND), A., i, 770.

Phenyl δ -*p*-methoxyphenylbutadiene ketone (SCHOLTZ and WIEDEMANN), A., i, 437.

Phenylmethylacridinium methyl sulphate (ULLMANN), A., i, 395.

p-toluenesulphonate (ULLMANN and WENNER), A., i, 407.

3-Phenylmethylamino-1:5-diphenyl-1:2:4-triazole (WHEELER and BEARDSLEY), A., i, 294.

Phenylmethylcarbamic acid, methyl ester (SLOSSON), A., i, 475.

3-Phenyl-2-methyl-3:4-dihydroquinazoline, 6-*p*-dinitro-, and its salts and sulphoacetate (STILLICH), A., i, 864.

***p*-Phenylmethyldi-*o*-hydroxybenzilosazone** and its tetra-acetyl derivative and labile isomeride (BILTZ and SIEDEN), A., i, 121.

Phenylmethyldiketononono-acetyl-hydrazone and -semicarbazone (DIELS and vom DORP), A., i, 862.

2-Phenyl-4-methylene-1:4-benzopyranol, 7-*op*-trihydroxy- (BÜLOW), A., i, 357.

3-Phenyl-5-methylenedioxybenzylidenerhodanic acid (ANDREASCH and ZIPSER), A., i, 856.

Phenylmethylethylethylcarbinol and its chloride (KLAGES and HAHN), A., i, 19.

Phenylmethylglycollic acid, and its ethyl ester (GRIGNARD), A., i, 32.

Phenylmethylnitroamine, 3:4-*di*-bromo- and -chloro-2:6-dinitro- (BLANKSMA), A., i, 333.

Phenylmethylnitromethane (BAMBERGER and SELIGMAN), A., i, 100.

12-Phenyl-10-methylpheno- $\alpha\beta$ -naphthoacridine, 9- and *p*-diamino-, and their acetyl derivatives and their salts (ULLMANN and GRETER), A., i, 447.

Phenyl-*p*-methylphenylformazylcarboxylic acid, *p*-bromo- and *p*-chloro-, menthyl esters (LAPWORTH), T., 1126; P., 149.

γ -Phenyl- α -methylpropyl alcohol, *o*-hydroxy-, and its urethanes (STOERMER and SCHÄFFER), A., i, 847.

1-Phenyl-4-methyl-3-propylpyrazolone (BOUVEAULT and BONGERT), A., i, 144.

1-Phenyl-3-methylpyrazole, 5-chloro- and its alkyl haloids (MAYER), A., i, 370.

5-Phenyl-3-methylpyrazole (MOUREU and BRACHIN), A., i, 581.

4-nitroso- (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 210.

1-Phenyl-3-methyl-5-pyrazolone, azomethine derivative of (SACHS and KRAFT), A., i, 335.

1-Phenyl-5-methyl-3-pyrazolone (MAYER), A., i, 370.

Phenylmethylpyrazoloneazobenzene, Knorr's, constitution of (EIBNER), A., i, 871.

6-Phenyl-3-methylpyridazine and its additive salts (PAAL and DENCKS), A., i, 289.

4-Phenyl-2-methylpyridine and its 5:6-dicarboxylic acid and their salts (BÜLOW and ISSLER), A., i, 719.

2-Phenyl-4-methylquinoline, *p*-amino-. See Flavaniline.

4-Phenyl-2-methylquinoline (BÜLOW and ISSLER), A., i, 719.

7-hydroxy-, and its salts and ethoxy- and benzoyl derivatives (BÜLOW and ISSLER), A., i, 718.

Phenyl methylstilbyl ketone and its hydroxylamine derivative (KONOWALOFF and FINOGUÉEFF), A., i, 264.

3-Phenyl-2-methyl-1:2:3:4-tetrahydroquinazoline, 6-*p*-dinitro-2-hydroxy- (STILLICH), A., i, 864.

1-Phenyl-3-methyltetronic acid and its benzoyl derivative (DIMROTH and FEUCHTER), A., i, 631.

Phenylmethyl- ψ -dithiobiurets (JOHNSON and BRISTOL), A., i, 751.

Phenylmethyl- ψ -dithiocarbamic acid and its esters (HELLER and MICHEL), A., i, 477.

Phenylmethyl- ψ -thiocarbamide, cyano-, and its ammonium derivative (WHEELER and JAMIESON), A., i, 751.

Phenylmethyl- ψ -dithiourethane (v. BRAUN and RUMPF), A., i, 619.

Phenylmethyl-*o*-toluidine, 2:4-dinitro- (REITZENSTEIN), A., i, 816.

1-Phenyl-4-methyl-1:2:3-triazole, 5-hydroxy-, and its salts (DIMROTH and LETSCHE), A., i, 129.

1-Phenyl-4-methylurazole, 2-acetyl derivative of (ACREE), A., i, 867.

9-Phenyl- β -naphthacridine and its hydride (ULLMANN, FETVADJIAN, and RACOVITZA), A., i, 521.

Phenylnaphthalenes, hydroxy-, and their acyl derivatives (HÖNIGSCHMID), A., i, 165.

4-Phenyl-1:3- β -naphthisooxazine. See β -Naphthoxazinebenzylidenemethylenamine.

Phenyl- β -naphthylamine (JAPP and MAITLAND), T., 269.

Phenyl- α - and - β -naphthylamines, chloronitro-derivatives of (REVERDIN and CRÉPIEUX), A., i, 858.

Phenylnaphthylcarbazoles. See Naphthacbazoles.

Phenyl- α -naphthyl-p-chloroformazylbenzene-p-sulphonic acid, potassium salt (FICHTER and FRÖHLICH), A., i, 723.

Phenyl- β -naphthylformazylbenzene (FICHTER and FRÖHLICH), A., i, 723.

Phenyl- α -naphthyformazylbenzene-p-sulphonic acid, sodium salt (FICHTER and FRÖHLICH), A., i, 723.

Phenyl- α -naphthyl ketone, α -amino- (ULLMANN and BLEIER), A., i, 176.

α -Phenyl-2-nitro-3-acetoxy-4-methoxy-cinnamic acid (PSCHORR and VOGTHERR), A., i, 183.

Phenyl-m-nitrobenzylidenehydrazine, action of amyl nitrite on (BAMBERGER and PEMSEL), A., i, 285.

Phenyl- α -m-dinitrobenzylidenehydrazine (BAMBERGER and PEMSEL), A., i, 285.

3-Phenyl-5- α -nitrobenzylidenerhodanic acid (ANDREASCH and ZIPSER), A., i, 856.

Phenyl-m-nitrobenzylidene- ψ -thiohydantoin (WHEELER and JAMIESON), A., i, 521.

Phenyl-p-nitrobenzylnitroamine, 2-bromo-4:6-dinitro-, and 2:4:6-trinitro- (BLANKSMA), A., i, 334.

Phenylnitroglyoxime peroxide (WIELAND), A., i, 769.

Phenyltrinitrophenylamine, p -chloro- (v. WALTHER), A., i, 583.

Phenyltrinitrophenylbenzylamidine, p -chloro- (v. WALTHER), A., i, 583.

Phenyloxamic acids, m - and p -amino-, and their acetyl derivatives, and their nitro-derivatives, and ethyl esters (KOLLER), A., i, 281.

3-Phenylisooxazole, 4-amino-, and its acyl derivatives and salts, and 4-nitro- (WIELAND), A., i, 769.

5-Phenylisooxazole-3-carboxylic acid, p -amino-, acetyl derivative, ethyl ester (BÜLOW and NOTTBOHM), A., i, 863.

α -Phenylpentenecarboxylic acids, β -chloro- (DIMROTH and FEUCHTER), A., i, 630.

α -Phenylphthalimide of Kuhara and Fukui. See Phthalylidiphenyldiamide.

Phenylpiperidinecarbamide, and p -nitro- (BOUCHETAL DE LA ROCHE), A., i, 574.

Phenylpiperidylurethane, 2:4:6-trichloro- and α -nitro- (BOUCHETAL DE LA ROCHE), A., i, 776.

Phenylpropane. See Propylbenzene.

Phenylpropargylidene chloride (CHARON and DUGOUJON), A., i, 688.

1-Phenyl-3-propenyltriazole, 5-hydroxy- (RUPE and METZ), A., i, 536.

Phenylpropionic acid and its ethylester, preparation of, and addition of hydrogen bromide to (SUDBOROUGH and THOMPSON), T., 1154; P., 204. ethyl ester, action of, on resorcinol methyl ether and on phloroglucinol diethylether (RUHEMANN), T., 1134; P., 202.

Phenylpropionic acid, α -chloro- $\alpha\beta$ -dibromo-, and $\alpha\alpha\beta$ -trichloro- (CHARON and DUGOUJON), A., i, 472.

β -Phenylpropionic acid, $\alpha\beta$ -dibromo-. See Cinnamic acid dibromide.

1-Phenyl-3-propylpyrazolone (BOUVEAULT and BONGERT), A., i, 144.

1-Phenyl-3-propyltriazole, 5-hydroxy-, and its acetyl and $\alpha\beta$ -dibromo-derivatives (RUPE and METZ), A., i, 536.

1-Phenyl-3-propyl-5-triazolone-4-carboxylamide (RUPE and METZ), A., i, 536.

3-Phenylpyridazine-6-carboxylic acid (PAAL and DENCKS), A., i, 289.

α -Phenyl- β -pyridyl-ethylene glycol, -vinyl alcohol, and -ethanedione, and their salts and acyl derivatives (LADENBURG and KROENER), A., i, 275.

2-Phenylquinazoline, 4-hydroxy-, synthesis of (PAWLEWSKI), A., i, 721.

3-Phenylrhodanic acid (v. BRAUN), A., i, 15; (ANDREASCH and ZIPSER), A., i, 855.

2-Phenylsemicarbazide (BUSCH and WALTER), A., i, 522.

4-Phenylsemithiocarbazide, reaction of, with triphenylguanidine (SCHALL), A., i, 201.

Phenylsuccinic acid and its esterification, and potassium hydrogen salt and imide (WEGSCHEIDER and HECHT), A., i, 760.

9-Phenyl-2:4:5:7-tetramethylacridine (ULLMANN and WEINTRAUB), A., i, 519.

Phenyltetrazinedimethylmalonylic acid and its methyl ester and salts (PERKIN), T., 1227.

Phenylthioacetamide, *p*-amino-, and the action of hydrazine hydrate on (JUNG-HAHN and BUNIMOWICZ), A., i, 131.

Phenyldithioallophanic acid, methyl ester (JOHNSON and ELMER), A., i, 752.

Phenylthiocarbamide, solubility of, in water, influence of foreign substances on the (BOGDAN), A., ii, 532. influence of inorganic salts on the solubility of (BILTZ), A., ii, 358.

Phenylthiocarbamide, *o*-, *m*-, and *p*-amino-, and their salts (FRERICHS and HUPKA), A., i, 655.

Phenylthiodiazoline, *endo*thio-, and its 5-methyl derivative (BUSCH and SCHNEIDER), A., i, 534.

Phenyl- ψ -thiohydantoin, *m*-nitro- (JOHNSON), A., i, 581.

Phenyl- ψ -thiohydantoinglyoxylic acid (WHEELER and JAMIESON), A., i, 522.

α -Phenylthiol- α -amyl-, - α -benzyl-, and - α -ethyl-thiopropionic acids (POSNER and HAZARD), A., i, 243.

Phenylthiol-2-hydroxybenzoic acid (HINSBERG), A., i, 252.

Phenyl-*p*-tolenylamidine, benzoyl derivatives (WHEELER, JOHNSON, and MCFARLAND), A., i, 859.

Phenyltoluidines, nitro-derivatives of (REVERDIN and CRÉPIEUX), A., i, 248.

2:4-dinitro- (REITZENSTEIN), A., i, 816.

Phenyl δ -*p*-tolylbutadiene ketone and its oxime (SCHOLTZ and WIEDEMANN), A., i, 437.

Phenyltolylethyl- ψ -dithiobiuret (JOHNSON and CRAMER), A., i, 753.

Phenyl-*m*-tolyliodonium hydroxide and salts (WILLGERODT and ÜMBACH), A., i, 744.

Phenyl *p*-tolyl ketone, *o*-amino- (ULLMANN and BLEIER), A., i, 176.

Phenyl-*p*-tolymethylsulphine iodide, amino- (v. MEYER and HEIDUSCHKA), A., i, 809.

Phenyltolyl-mono- and -di-methyl- ψ -dithiobiurets (JOHNSON, BRISTOL, and CRAMER), A., i, 752, 753.

Phenyl-*p*-tolylphosphoric amidine (CAVEN), T., 1045; P., 200.

Phenyltolylpiperidine and its salts (SCHOLTZ and WIEDEMANN), A., i, 436.

2-Phenyl-6-tolylpyridine and *iso*-2-**Phenyl-6-tolylpyridine** and their salts (SCHOLTZ and WIEDEMANN), A., i, 436.

Phenyltolylsemicarbazides, 4:2- and 4:1-, and their *dithiocarboxylic acids*, methyl esters (BUSCH and FREY), A., i, 538.

5-Phenyl-1-*p*-tolylthiodiazoline, *endo*-thio-, and its 4-benzyl derivative (BUSCH and BLUME), A., i, 534.

Phenyltriazine, hydroxy- (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 205.

1-Phenyl-1:2:3-triazole, 5-amino-, and its 4-carboxylic acid, and its potassium salt and ethyl ester (DIMROTH and WERNER), A., i, 129.

5-hydroxy-, and its 4-carboxylic acid, and its salts and esters (DIMROTH and EBERHARDT), A., i, 128.

Phenyltriazoles, hydroxy- (RUPE and LABHARDT), A., i, 537. synthesis of, and spatial hindrance (RUPE and METZ), A., i, 535.

1-Phenyltriazole-3-carboxylic acid, 5-hydroxy- (RUPE and METZ), A., i, 536.

1-Phenyl-5-triazolone-4-carboxylic acid and its esters (DIMROTH and EBERHARDT), A., i, 127.

Phenylisotriazoxolecarboxylic acid and its silver salt, and *p*-chloro- (PERKIN), T., 1223.

α -Phenyltricarballylic acid (HECHT), A., i, 700.

Phenyltrimethylammonium periodides (STROMHOLM), A., i, 462.

1-Phenylcyclotrimethylene-2:3-di- and 2:2:3:3-tetra-carboxylic acids (KÖRTZ and STALMANN), A., i, 741.

1-Phenyl-3:4:5-trimethylpyrazole and its salts (KNORR and JOCHHEIM), A., i, 528.

1-Phenyl-2:4:4-trimethyl-3:5-pyrazolidone (PERKIN), T., 1225.

1-Phenyl-3:4:4 trimethylpyrazoline, 5-hydroxy-, and conversion of, into 1-phenyl-3:4:5-trimethylpyrazole (KNORR and JOCHHEIM), A., i, 528.

Phenyltrimethyltrinitroamine *s*-tri-nitro- (BLANKSMA), A., i, 624.

β -Phenylumbelliferone (BULOW), A., i, 272.

4-Phenyluracil (WHEELER and MERRIAM), A., i, 525.

Phenylurazoles, constitution of (ACREE), A., i, 867.

Phenylvanillilosazones, *p*-bromo- and *p*-nitro-, and their triacetyl derivatives (BILTZ and SIEDEN), A., i, 120.

Phillipsite from the neighbourhood of Rome (ZAMBONINI), A., ii, 656.

Philothion (Pozzi-Escot), A., i, 670 ; (BACH and CHODAT), A., i, 671.

Phloridzin diabetes. See under Diabetes.

Phloroglucinol diethyl ether, action of ethylchlorofumamate and ethyl phenylpropiolate on (RUHEMANN), T., 1134 ; P., 202.

diethyl and triethyl ethers, chlorodinitro- (JACKSON and CARLTON), A., i, 79.

methyl ether, nitroso-formation from (POLLAK and GANS), A., i, 252.

trimethyl ether, 2:6-dinitro- (BLANKSMA), A., i, 624.

Phloroglucinoldicarboxylic acid, formation of, from the interaction of ethyl malonate with its sodium derivative (MOORE), P., 276.

Phloroglucinolphthalein and its tetraacetyl, tetrabenzoyl and tetrabromoderivatives (LIEBERMANN and ZERNER), A., i, 488.

Phorone, condensation of, with hydrogen cyanide (LAIRWORTH), T., 999 ; P., 189.

Phosgene. See Carbonyl chloride.

Phosphatic manures, have, a direct action on cultivated plants? (LUMIA), A., ii, 176.

Phosphomolybdic acid (LEVI and SPETA), A., ii, 731.

Phosphonium iodide, action of, on polychlorides (E. and P. FIREMAN), A., ii, 644.

Phosphorescence of calcium sulphide containing bismuth in presence of traces of sodium (DE VISSER), A., ii, 522.

of diamonds (ROSENHEIM), A., ii, 123.

Phosphoric amidines (CAVEN), T., 1045 ; P., 200.

Phosphorus, free, in the Saline Township meteorite (FARRINGTON), A., ii, 304.

heat of transformation of white, into red phosphorus (GIRAN), A., ii, 362.

red (SCHENCK), A., ii, 363 ; (STOCK), A., ii, 421.

the emanation of (BLOCH), A., ii, 206 ; (SCHEIDT), A., ii, 362.

heats of combustion and formation of (GIRAN), A., ii, 270.

solubility of (STICH), A., ii, 540.

red, supposed solubility of, in aqueous alcoholic alkalis (MICHAELIS and v. AREND), A., ii, 207.

action of liquefied ammonia on (STOCK), A., ii, 421.

Phosphorus, action of, on copper (GRANGER), A., ii, 547.

yellow, reaction between copper and, in aqueous solution (STRAUB), A., ii, 593.

action of, on hydrazine (DITO), A., ii, 592.

reaction between oxygen and (RUSSELL), T., 1263 ; P., 207.

in animal tissues (PERCIVAL), A., ii, 164.

poisoning. See Poisoning.

protein, changes in the, in plants (IWANOFF ; ZALESKI), A., ii, 94.

changes in, in the germination of vetches (IWANOFF), A., ii, 94.

Phosphorus compounds with amines (MICHAELIS), A., i, 380.

with nitrogen (MICHAELIS), A., i, 379 ; (UHLFELDER), A., i, 671.

Phosphorus trichloride, action of, on ethylene glycol (CARRÉ), A., i, 405.

action of, on glycerol (CARRÉ), A., i, 598.

action of, on the aromatic ethers of glycerol (BOYD), T., 1135 ; P., 202.

haloids, action of, on dihydroresorcin (CROSSLEY and HAAS), T., 494 ; P., 75.

action of, on dimethyldihydroresorcin (CROSSLEY and LE SUEUR), T., 110.

trihaloids, iodometry of (RUPP and FINCK), A., ii, 41.

nitride, P_3N_5 (STOCK and HOFFMANN), A., ii, 207.

suboxide (MICHAELIS and v. AREND), A., ii, 207.

pentoxide (*phosphoric oxide*) (GIRAN), A., ii, 270.

Phosphorus acids :—

Hypophosphorous acid, compounds of, with benzophenone and with methyl propyl ketone (MARIE), A., i, 379.

action of, on diethyl ketone and on acetophenone (MARIE), A., i, 678.

condensation of, with methyl ethyl ketone (MARIE), A., i, 328.

and hypophosphates, iodometry of (RUPP and FINCK), A., ii, 330.

Phosphorous acid, velocity of the reaction between potassium persulphate, hydrogen iodide and (FEDERLIN), A., ii, 14.

reaction between, and mercuric chloride (MONTEMARTINI and EGIDI), A., ii, 65.

esterification of (SACHS and LEVITSKY ; SACHS ; LEVITSKY), A., i, 733.

Phosphorus acids :—

Phosphorous acid, action of, on erythritol (CARRÉ), A., i, 456.
iodometry of (RUPP and FINCK), A., ii, 41, 330.

Pyrophosphorous acid (AUGER), A., ii, 421.

Phosphoric acid, action of, on erythritol and on mannitol (CARRÉ), A., i, 307.
effect of deficiency of, on plants (WILFARTH and WIMMER), A., ii, 506.
fixation of, in the soil (CRAWLEY), A., ii, 325.
action of, in different phosphates (BOTTCHER), A., ii, 750.
effect of, on sugar beet (GRÉGOIRE), A., ii, 749.
estimation of free (HERZFELDER), A., ii, 682.
estimation of, volumetrically (DE MOLINARI), A., ii, 101.
ammoniacal citrate solution as used in the estimation of (VERWEIJ), A., ii, 451.
estimation of, by means of ammonium phosphomolybdate (BAXTER), A., ii, 180.
estimation of, by titrating the ammonium phosphomolybdate precipitate (CÉZAR), A., ii, 101.
estimation of, with molybdate (RIEGLER), A., ii, 181.
citrate-soluble, estimation of (PAS-
SON), A., ii, 240; (WOY), A., ii,
390.
estimation of, in basic slag (NAU-
MANN), A., ii, 380; (v. LORENZ),
A., ii, 511.
estimation of, in basic slags by the molybdate method (NEU-
BAUER), A., ii, 102.
estimation of, in decarbonised substances (NEUMANN), A., ii,
243.
rapid estimation of, volumetrically, in fertilisers (EMERY), A., ii,
41.
estimation of available, in manures (SUTHERST), A., ii, 390.
estimation of available, in soils (COUSINS and HAMMOND), A., ii,
693.
estimation of total, in soils (WILLIAMS), A., ii, 511.
quantitative estimation of, in stomach contents (CLOWES), A., ii,
693.
estimation of, colorimetrically, in drainage waters (VEITCH), A., ii,
329.

Phosphorus acids :—

Phosphates, compounds of, with selenates (WEINLAND and BARTTLINGCK), A., ii, 420.
crude, action of, on peat and other soils (TACKE), A., ii, 570.
Wiborgh, analysis of (WEIBULL), A., ii, 575.

Phosphate analyses, simplification of (PASSON), A., ii, 330.
cause of the destruction of platinum crucibles in (HERAEUS), A., ii, 82.

Metaphosphoric acid, thermochemistry of (GIRAN), A., ii, 197.

Pyrophosphoric acid, transformation of, into orthophosphoric acid (GIRAN), A., ii, 139.

Superphosphates, amount of free phosphoric acid in (HERZFELDER), A., ii, 682.
of lime in the soil, reversion of (SUTHERST), A., ii, 38.

Phosphorus sesquisulphide (MAI and SCHAFER), A., ii, 363.
conditions of phosphorescence of (CLAYTON), P., 231.

pentasulphide, action of ammonia on (STOCK and HOFFMANN), A., ii, 207.

Phosphorus, iodometry of (RUPP), A., ii, 692.
detection of (FISCHER), A., ii, 692.
estimation of, by the ammonium molybdate reagent (REICHARD), A., ii, 692.
estimation of, dissolved in oil (STRAUB), A., ii, 691.
estimation of, in plant substances (BEISTLE), A., ii, 325.
estimation of, in organic materials (SHERMAN), A., ii, 325.
rapid estimation of, in steel (AUCHY), A., ii, 693.

Phosphovanaditungstic acids, complex salts (ROGERS), A., ii, 376.

PHOTOCHEMISTRY :—

Light, chemical action of (CIAMICIAN and SILBER), A., i, 39, 171, 562, 626.
influence of, on the reactions between benzene and chlorine (SLATOR), T., 729; P., 185.
influence of, on the combination of carbon monoxide with chlorine (DYSON and HARDEN), T., 201.
orienting action of, on the sublimate produced in sunlight (RAIKOW), A., ii, 49.
sensitivity to, of colourless organic compounds (PINNOW), A., ii, 49.

Light radiations of certain oxides (FÉRY), A., ii, 124.

PHOTOCHEMISTRY :—

Developers, organic, influence of alkalis on the speed of development of (GUREWITSCH), A., ii, 706.

Photoelectric action (WULF), A., ii, 123.

Emanations, radioactive, condensation of (RUTHERFORD and SODDY), A., ii, 462.

- of phosphorus (BLOCH), A., ii, 206 ; (SCHMIDT), A., ii, 362.
- of radium (CURIE), A., ii, 255 ; (CROOKES), A., ii, 461.
- of radium and its coefficient of diffusion into air (CURIE and DANNE), A., ii, 462.

Radiations, emitted by radioactive lead (KORN and STRAUSS), A., ii, 463.

- from polonium (BECQUEREL), A., ii, 402.
- from polonium and from radium (BECQUEREL), A., ii, 257.
- from polonium and radium, magnetic deviation and nature of certain (BECQUEREL), A., ii, 256.
- from radium, properties of the (BECQUEREL), A., ii, 523.
- magnetic and electric deviation of (RUTHERFORD), A., ii, 256.
- influence of, on solid paraffin (BECQUEREL), A., ii, 465.
- oxidising action of (HARDY and WILLCOCK), A., ii, 622.

Radioactive bismuth (GIESEL), A., ii, 299, 603.

change (RUTHERFORD and SODDY), A., ii, 463.

lead as a primary active substance (HOFMANN and WÖLFL), A., ii, 402.

matter, absorption of gravitation energy by (GEIGEL), A., ii, 258.

substances (GIESEL), A., ii, 20 ; (MARCKWALD), A., ii, 81 ; (CURIE), A., ii, 622.

hypothesis of the nature of (RE), A., ii, 522.

action of, on the electrical conductivity of selenium (VAN AUBEL), A., ii, 403.

from bismuth from Joachimsthal pitchblende (MARCKWALD), A., ii, 81, 733.

from pitchblende and radium (GIESEL), A., ii, 193.

thorium (HOFMANN and ZERBAN), A., ii, 732.

Radioactivity (RUTHERFORD), A., ii, 348.

experiments in (RAMSAY and SODDY), A., ii, 622.

PHOTOCHEMISTRY :—

Radioactivity, rate of decrease of, induced by radium in a closed space (CURIE), A., ii, 50, 255.

disappearance of, induced on solid substances by the action of radium (CURIE and DANNE), A., ii, 255.

comparative, of radium and thorium (RUTHERFORD and SODDY), A., ii, 347.

excited, and the method of its transmission (RUTHERFORD), A., ii, 255.

and ionisation of the atmosphere (RUTHERFORD and ALLEN), A., ii, 123.

induced (CURIE), A., ii, 255.

production of, by actinium (DE BIERNE), A., ii, 257, 348.

of metals generally (MCLENNAN and BURTON), A., ii, 621.

from rain (WILSON), A., ii, 194.

of uranium (RUTHERFORD), A., ii, 347.

Canal rays, chemical action of (SCHMIDT), A., ii, 50.

Cathode rays, action of, on inorganic substances (GOLDSTEIN), A., ii, 524.

Reflective power and electrical conductivity of metals, relation between (HAGEN and RUBENS), A., ii, 348.

Optical activity, influence of cyclic radicles on (FRANKLAND and ORMEROD), T., 1342 ; P., 230.

influence of various substituents on (FRANKLAND and SLATOR), T., 1349 ; P., 229.

Rotation of esters of camphocarboxylic acid and of bornyl and isobornyl esters of fatty acids (MINGUIN and DE BOLLEMONT), A., i, 352.

of camphor (SCHLUNDT), A., ii, 401.

of cocaine hydrochloride (IMBERT), A., i, 50.

of *L*-lactic acid and its potassium salt, influence of molybdenum and tungsten trioxides on the (HENDERSON and PRENTICE), T., 259 ; P., 12.

of maldiamicide, maldi-*n*-propylamide, and malidibenzylamide (McCRAE), T., 1324 ; P., 230.

of the condensation products of methyl acetoacetate with aldehydes (HANN and LAPWORTH) P., 291.

of methyl cyanoacetate and *p*-tolylazocyanacetate (BOWACK and LAPWORTH), P., 23.

PHOTOCHEMISTRY :—

Rotation of the methyl esters of the isomeric mono- and di-chlorobenzoic acids (COHEN and BRIGGS), T., 1213 ; P., 207.
 of molecules, influence of solvents on the (HALLER and MINGUIN), A., ii, 521.
 of active molecules, influence of the introduction of unsaturated radicles on the (HALLER and DESFONTAINES), A., i, 628.
 of cyclic molecules, influence exerted by the introduction of double linkings into the nuclei containing the asymmetric carbon atom on the (HALLER), A., i, 563.
 influence of the double linking of the nucleus containing the asymmetric carbon atom on the, of the molecule (HALLER), A., i, 503.
 of β -naphthyl-dimethyl-, -diethyl-, and -methylmethylethyl- amines (REYCHLER), A., i, 23.
 of diethyl *m*-nitrobenzoyltartrate and nitro-*p*-toluyltartrate (FRANKLAND, HEATHCOTE, and GREEN), T., 173.
 of mono- and di-nitrotartaric acids and their esters (FRANKLAND, HEATHCOTE, and HARTLE), T., 154.
 of the nucleic acid of the wheat embryo (OSBORNE), A., i, 543.
 molecular, of organic compounds (TSCHUGAEFF), A., ii, 1.
 of quinic acid, action of inorganic compounds on the (RIMBACH and SCHNEIDER), A., ii, 624.
 of optically active substances, influence of the double linking between carbon atoms on the (RUPE), A., i, 565 ; (BRUHL), A., i, 742.
 of sucrose, dependence of the temperature coefficient of the specific, on the temperature and wavelength (SCHONROCK), A., ii, 764.
 of tartaric di-*ar*- and -*ac*-tetrahydro- β -naphthylamides, difuryl-amide, and dipiperide (FRANKLAND and ORMEROD), T., 1342 ; P., 230.
 of tartramide and its substituted derivatives (FRANKLAND and SLATOR), T., 1349 ; P., 229.
 of some vegetable proteids (OSBORNE and HARRIS), A., i, 872.
Multirotation of lactose (HUDSON), A., ii, 623.

PHOTOCHEMISTRY :—

Mutarotation of glucose as influenced by acids, bases, and salts (LOWRY), T., 1314 ; P., 156.
Magnetic rotation of the plane of polarisation in liquefied gases, measurements on the, with methyl chloride (SIERTSEMA), A., ii, 123.
 of diethyl methylenedimethylsuccinate (PERKIN), T., 1389 ; P., 248.
 of methyl glyoximeperoxidetetramethyldimalonylate (PERKIN), T., 1234.
Refraction of butter fat (BAIER), A., ii, 249.
 of gases, dependence of the, on temperature (WALKER), A.. ii, 623.
 of methyl glyoximeperoxidetetramethyldimalonylate (PERKIN), T., 1234.
 of hydrocarbons with heterocyclic chains (PELLINI and LOI), A., ii, 121.
 of solid hydrocarbons (MABERY and SHEPHERD), A., ii, 345.
 of diethyl methylenedimethylsuccinate (PERKIN), T., 1390 ; P., 248.
 of isonitroso-derivatives (MULLER and BAUER), A., ii, 705.
 of pyridine and of α -, β -, and γ -picolines (CONSTAM and WHITE), A., i, 277.
 of salt solutions, variation of the index of, with the concentration (WALTER), A., ii, 705.
Molecular refraction of oximinocyano-acetic esters (MULLER), A., i, 77.
 of the sodium salts of oximinocyanoacetic esters (MULLER), A., i, 78.
Refraction coefficient of serum proteids (REISS), A., ii, 659.
Refractometer, Zeiss immersion, estimation of aqueous solutions with the (MATTHES and WAGNER), A., ii, 610.
Dispersion of isonitroso-derivatives (MULLER and BAUER), A., ii, 705.
Molecular dispersion of oximinocyano-acetic esters (MULLER), A., i, 77.
Spectra, absorption, of cotanine (DOBBIE, LAUDER, and TINKLER), T., 600 ; P., 75.
 of corydaline, berberine, and other alkaloids in relation to their chemical constitution (DOBBIE and LAUDER), T., 605 ; P., 7.

PHOTOCHEMISTRY :—

Spectra of didymium salt solutions containing phosphoric acid (WAEGNER), A., ii, 729.
 of some elements, relationship between the, and the squares of their atomic weights (WATTS), A., ii, 253, 654.
 reversed lines in the, of gases (TROWBRIDGE), A., ii, 253.
 of helium, effect of mercury vapour on the (COLLIE), A., ii, 49.
 of hydrochloric, nitric, and sulphuric acids (HARTLEY), T., 233.
 of hydrogen (TROWBRIDGE), A., ii, 253.
 of indigotin, diaminindigotin, and tetra-azoindigotin (EDER), A., i, 344.
 ultra-violet absorption, of *o*-, *m*-, and *p*-isomerides (MAGINI), A., ii, 706.
 of laudanine and laudanosine in relation to their constitution (DOBBIE and LAUDER), T., 626; P., 9.
 of lithium (HAGENBACH), A., ii, 122.
 abnormal changes in some lines in the (RAMAGE), A., ii, 193.
 of magnesium, new lines in the (FOWLER), A., ii, 461.
 of metallic nitrates (HARTLEY), T., 221.
 of metals in the electric arc (HASSELBERG), A., ii, 706.
 of molybdenum (HASSELBERG), A., ii, 706.
 of nitric acid in various states of concentration (HARTLEY), T., 658; P., 103.
 of pilocarpine nitrate (HARTLEY), P., 122.
 of pilocarpine and isopilocarpine nitrates (DOBBIE), T., 453.
 of potassium (RITZ), A., ii, 621.
 flame, of radium (GIESEL), A., ii, 20; (RUNGE and PRECHT), A., ii, 346.
 spark, of radium (RUNGE and PRECHT), A., ii, 621.
 absorption and fluorescent, of sodium vapour (WOOD and MOORE), A., ii, 621.
Spectrophotometric study of some electrolytes in solution (VAILLANT), A., ii, 253.
Spectroscope, hand- (BECKMANN), A., ii, 521.
Spectroscopic methods (KONEN), A., ii, 122.

1-Phthalamic acid, 3-nitro- (KAHN), A., i, 93.
Phthalaminobenzylmalonic acid (SØRENSEN), A., i, 834.
Phthaleins (HERZIG and POLLAK), A., i, 95.
Phthalic acid, preparation of (BASLER CHEMISCHE FABRIK), A., i, 487, 561.
Phthalic acid, benzyl ester (BISCHOFF), A., i, 261.
 phenyl and benzyl esters (BISCHOFF and v. HEDENSTRÖM), A., i, 86.
Phthalic acid, amino-derivatives of (PIUTTI and ABATTI), A., i, 424.
 3-amino-, and its salts and imide (KAUFFMANN and BEISSWENGER), A., i, 700.
 3-nitro-, esters of, and separation of the α - and β -esters (KAHN), A., i, 93.
 3- and 4-nitro-, derivatives of (BOGERT and BOROSCHEK), A., i, 761.
isoPhthalic acid, 4-chloro- (ULLMANN and UZBACHIAN), A., i, 626.
Phthalic anhydride, condensation of, with benzene haloiods (GRAEBE, THÉVENAZ, and KNEELAND), A., i, 345.
 action of, on nitromethane (GABRIEL), A., i, 345.
 interaction of, with *o*-, *m*-, and *p*-phenylenediamines (MEYER), A., i, 444.
 3-amino-, *N*-acetyl derivative (KAHN), A., i, 696.
Phthalic chloride, action of aniline on (DUNLAP and CUMMER), A., i, 699.
 action of, on aryl-mercaptides, -sulphinates, and -thiosulphonates (TRÖGER and HORNING), A., i, 95.
Phthalidedicarboxylic acid (THIELE and GIESE), A., i, 425.
Phthalimide, 3-nitro-, and its potassium derivative (KAHN), A., i, 94.
Phthalimidine haloid salts (WERNER), A., i, 235.
Phthalimino malonic acid, ethyl ester, and its hydrolysis (SØRENSEN), A., i, 833.
Phthalimino- γ -phthaliminopropylmalonic acid, ethyl ester and its hydrolysis (SØRENSEN), A., i, 834.
Phthalones (v. HUBER), A., i, 576; (EIBNER), A., i, 644.
Phthalylacetylhydroxylamine (MEISTER, LUCIUS, & BRÜNING), A., i, 491.
Phthalylidiphenyldiamide (HOOGEWERFF and VAN DORP), A., i, 174.
Phthalyl green (HALLER and GUYOT), A., i, 200.
Phthalylhydroxylamic acid (MEISTER, LUCIUS & BRÜNING), A., i, 491.

Physical chemistry, applications of, to the study of toxins and antitoxins (ARRHENIUS and MADSEN), A., ii, 561.
 constants, critical solution temperature, and osmotic pressure (CRISMER), A., ii, 10.
Physiological action of amino-acids (ABERHALDEN and BERGELL), A., ii, 666.
 of anthranilic acid and its methyl derivative and their acetyl derivatives (KLEIST), A., i, 570.
 of antiarin and ipoh (SELIGMANN), A., ii, 314.
 of arsenic (STOCKMAN and CHARTERIS), A., ii, 501.
 of betaine (ANDRLÍK, VELICH, and STANĚK), A., ii, 228.
 of boric acid (HOFMANN), A., ii, 317.
 of *tribromotert.-butyl alcohol* (HOUGHTON and ALDRICH), A., ii, 315.
 of sodium bromovaleate (FÉRÉ), A., ii, 442.
 of caesium chloride (HANFORD), A., ii, 502.
 of calcium (LANGENDORFF and HUECK), A., ii, 498.
 of camphocarboxylic acid and its esters and sodium salt (BRÜHL), A., i, 5.
 of choline (KRÜGER and BERGELL), A., i, 796.
 of epinephrine (AMBERG), A., ii, 314.
 of ethyl alcohol (GRÉHANT), A., ii, 317.
 of α -ethylbutyrylcarbamide, diethylmalonylcarbamide and dipropylmalonylcarbamide (FISCHER and V. MERING), A., i, 552.
 of filmarone (KRAFT), A., i, 571.
 of helmitoland theocine (EICHENGRÜN), A., i, 195.
 of iodine (LABBÉ and LORTAL-JACOB), A., ii, 498.
 of optical isomerides (CUSHNY), A., ii, 564.
 of manganese (COHN), A., ii, 166.
 of morphine (BERGELL and PSCHORR), A., ii, 502; (VAHLEN), A., ii, 676.
 of nerol, geraniol, and cyclogeraniol (HILDEBRANDT), A., ii, 660.
 of sodium nitroprusside (FONZES-DIACON and CARQUET), A., ii, 605.
 of phenanthrene derivatives (BERGELL and PSCHORR), A., ii, 502.
 of phenylglycine (ROSENFIELD), A., ii, 743.
 of pilocarpine (FRANK and VOIT), A., ii, 167.
 of proteoses (MENDEL and UNDERHILL), A., ii, 315; (UNDERHILL), A., ii, 661.

Physiological action of radium rays (HARDY and WILLCOCK), A., ii, 622.
 of saline purgatives (MACCALLUM), A., ii, 742.
 of salt (BELLI), A., ii, 666.
 of sonnoform and ethyl bromide (COLE), A., ii, 502.
 of suprarenal extract (S. J. and C. MELTZER), A., ii, 442, 564.
 of thymus extracts (VINCENT), A., ii, 664.
 of urea and sugars (LESNÉ and RICHER), A., ii, 503.
 See also Organism.
Physiological decomposition of iodo-albumin (MOSSE and NEUBERG), A., ii, 496.
 experiments during two balloon journeys (v. SCHROETTER and ZUNTZ), A., ii, 161.
 relations of derivatives of proteids containing sulphur (FRIEDMANN), A., i, 75, 301.
Physioco-chemical notes (SCHAER), A., ii, 344.
Phytelephas macrocarpa, mechanism of the saccharification of mannans of, by seminase (BOURQUELOT and HÉRISSEY), A., ii, 567.
Phytosterol from olive oil (SANI), A., i, 250.
 α -**Picoline** (*2-methylpyridine*) from brown-coal tar (FRESE), A., i, 364.
 γ -**Picoline** (*4-methylpyridine*), condensation of, with formaldehyde (KOENIGS and HAPPE), A., i, 850.
 γ -**Picoline** (*4-methylpyridine*), 2:3:5-trichloro- (SELL and DOOTSON), T., 399; P., 48.
Picolines, α -, β -, and γ -, physical constants of (CONSTAM and WHITE), A., i, 276.
Pieric acid, solubility of, in ether (BOU-GAULT), A., i, 755.
 derivatives of (JACKSON and EARLE), A., i, 406.
Picroglobularin (TIEMANN), A., ii, 608.
Picromerite, higher limit of temperature of formation of (VANT HOFF and MEYERHOFFER), A., ii, 555.
 5 -**Picrylselenolacridol** and its salts (EDINGER and KITSEMA), A., i, 721.
Pigments, red, of alkanna root (GAWALOWSKI), A., i, 109.
 of hair (SPIEGLER), A., i, 589.
 of the Lepidoptera (v. LINDEN), A., ii, 677.
Pigs, feeding experiments on, with fish meal, maize cakes, and wheat bran (KLEIN), A., ii, 37.

Pigs, sucking, growth of, on a diet of skimmed cows' milk (WILSON), A., ii, 89.

Pilocarpine, constitution of (JOWETT), T., 438; P., 54. nitrate, spectrum of (HARTLEY), P., 122. physiological action of (FRANK and VOIT), A., ii, 167. detection of (WANGERIN), A., ii, 118.

*iso***Pilocarpine**, constitution of (JOWETT), T., 455; P., 55.

*iso***Pilocarpinic acid**, and *dibromo*, and *iso***Pilocarpinolactone**, constitution of (JOWETT), T., 461; P., 55.

Pilocarpoic acid (JOWETT), T., 463; P., 56.

Filomalic acid (JOWETT), T., 463; P., 56.

Pilopinic acid (JOWETT), T., 463; P., 56.

Pinacolin and **Pinacone**, reactions of (DENIGÈS), A., i, 606.

Pinacone, $C_{29}H_{26}O_2$, from the reduction of deoxybenzoimbenzylideneacetophenone (AUERBACH), A., i, 412.

Pinene, action of bromine on, in presence of water (GENVRESSE and FAIVRE), A., i, 711. action of oxalic acid on (SCHINDELMEISER), A., i, 267. oxidation of, with chromyl dichloride (HENDERSON, GRAY, and SMITH), T., 1299; P., 195. hydrochloride, nitration of (KONOWALOFF and KIKINA), A., i, 269.

d-**Pinene**, some transformations of (DENARO and SCARLATA), A., i, 844.

Pinus palustris, resin of (TSCHIRCH and KORITSCHONER), A., i, 105.

Pinyl formate and hydrogen oxalate (AMPÈRE ELECTRICAL Co.), A., i, 502

β-**Pipecoline** hydrogen tartrates, *r*-, *d*-, and *l*- (LADENBURG and BOBERTAG), A., i, 575.

α-**Piperazineanthraquinone** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 499.

α-**Piperidinoanthraquinone** and 5-hydroxy- and 8-nitro-derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 499.

Piperidino-codide and -methylmorphine and their methiodides (VONGERICHTEN and MULLER), A., i, 571.

Piperidyl-2-acetic acid (KOENIGS and HAPPE), A., i, 850.

Piperidyl-β-naphthoisatin (WICHELHAUS), A., i, 632.

Piperonal, compound of, with sulphuric acid (HOOGEWERFF and VAN DORP), A., i, 170.

Piperonal, indogenide of (NOELTING), A., i, 198.

Piperonal-green (LIEBERMANN), A., i, 861.

Piperonalphenyl-ψ-thiohydantoin (WHEELER and JAMIESON), A., i, 521.

Piperlyhydrazine (AHRENS and SOLL-MANN), A., i, 513.

Pipette, siphon (GAWALOWSKI), A., ii, 237.

Pitchblende, emanation-substance from (MARCKWALD), A., ii, 81, 733; (GIESEL), A., ii, 193.

Plant ash, estimation of the constituents of, and their importance for agricultural chemistry (TOLLENS), A., ii, 37. cells. See Cells.

Plant growth, physiological importance of calcium to (BRUCH), A., ii, 233.

rôle of calcium oxalate in (AMAR), A., ii, 505.

action of manganese compounds on (LOEW and SAWA), A., ii, 322; (ASÖ), A., ii, 323.

effect of deficiency of nitrogen, phosphoric acid, and potassium on (WILFARTH and WIMMER), A., ii, 506.

action of potassium perchlorate on (ULLMANN; DIETRICH), A., ii, 571.

action of potassium ferrocyanide on (SUZUKI), A., ii, 174.

action of highly diluted potassium iodide on (SUZUKI), A., ii, 173.

action of sodium fluoride on (Asö), A., ii, 173.

action of sulphur dioxide on (WIELER), A., ii, 324.

effect of sulphurous acid on (KONIG and HASENBAUMER), A., ii, 748.

action of uranium on (LOEW), A., ii, 173.

Plant nutrition without their cotyledons (ANDRÉ), A., ii, 567. with and without cotyledons (ANDRÉ), A., ii, 567.

Plant substances, estimation of sulphur and phosphorus in (BEISTLE), A., ii, 325.

Plants, influence of mineral salts on the acidity of (CHARABOT and HÉBERT), A., ii, 505.

utilisation of ternary carbon by (MAZÉ), A., ii, 36.

assimilation of carbon dioxide in green (BOKORNY), A., ii, 505.

action of carbon dioxide on the movements of water in (KOSAROFF), A., ii, 94.

investigation of glucosides in connection with the internal mutation of (WEEVERS), A., ii, 232.

Plants, influence of the nature of external media on the state of hydration of (CHARABOT and HÉBERT), A., ii, 233.
influence of external media on the formation and evolution of terpene compounds in (CHARABOT and HÉBERT), A., ii, 607.
can the manurial requirements of, be established by their analysis? (V. SEELHORST, BEHN, and WILMS), A., ii, 234.
rôle of, in dissolving the undissolved nutritive substances of the soil (KOSOWITSCH), A., ii, 234.
cultivated, have phosphatic and potassium manures a direct action on? (LUMIA), A., ii, 176.
proteolytic enzymes in (VINES), A., ii, 321; (JAVILLIER), A., ii, 506.
formation of proteids in (GODLEWSKI), A., ii, 678.
synthesis of proteids by (LAURENT and MARCHAL), A., ii, 506.
proteids and other nitrogen compounds in (NEDOKUCHAEFF), A., ii, 508.
decomposition and regeneration of proteids in (BALICKA-IWANOWSKA), A., ii, 449.
changes in the protein phosphorus in (IWANOFF; ZALESKI), A., ii, 94.
sucrose in (BOURQUELOT), A., ii, 747.
occurrence of urea in (BAMBERGER and LANDSIEDL), A., ii, 567.
chlorophyllous, reserve phospho-organic matter of (POSTERNAK), A., ii, 607, 679, 680.
etiolated, nutrition of (ANDRÉ), A., ii, 606.
grafted, utilisation of mineral principles by (DANIEL and THOMAS), A., ii, 36.
higher, anaerobic metabolism of, and its relation to alcoholic fermentation (STOKLASA, JELINEK, and VITEK), A., ii, 388.
Plastein, a soluble modification of (SAW-JALOFF), A., i, 451.
Plaster of Paris (CLOËZ), A., ii, 292.
Platinum, condition of, in the nickel-copper ores from Sudbury (DICKSON), A., ii, 302.
colloidal, preparation of (GUTBIER), A., ii, 82; (HENRICH), A., ii, 299; (GARBOWSKI), A., ii, 432.
electrolytic solution of, by alternating currents (RUER), A., ii, 407, 528.
solubility of, in potassium cyanide (GLASER), A., ii, 242.
action of sulphuric acid on (CONROY), A., ii, 433.

Platinum :—
Platiniammonium polysulphide (HOFMANN and HOCHTLEN), A., ii, 728.
Platinum compounds (BIILMANN and ANDERSON), A., ii, 488.
Platinum salts, complex (VÉZES), A., ii, 25, 229.
Platinic chloride, action of certain salts on (OECHSNER DE CONINCK), A., ii, 219.
Chloroplatinic acid and its salts (BELLUCCI), A., ii, 155.
Platinum organic compounds (BIILMANN and ANDERSON), A., ii, 488.
Platinum bases (KLASON), A., ii, 224; (KLASON and WANSELIN), A., i, 238.
potassium cyanide, action of carbon monoxide on (MULLER), A., i, 238.
Platinum, assay of, and of its alloys with the precious metals (NEVEU), A., ii, 514.
precipitation of, by formaldehyde (AWERKIEFF), A., ii, 603.
separation of gold and (WILLSTÄTTER), A., ii, 576.
Platinum crucible for carbon combustions (STEHMAN), A., ii, 452.
cause of the destruction of, in phosphate analyses (HERAEUS), A., ii, 82.
spirals, catalytic reactions caused by (TRILLAT), A., ii, 589.
Platophosphineammine compounds (KLASON and WANSELIN), A., i, 238.
Platoso-oxalonitrous acid and its salts (VÉZES), A., i, 229; ii, 25.
Plumasite, an oligoclase-corundum-rock from California (LAWSON), A., ii, 658.
Plumbic salts. See under Lead.
Poisoning by carbon monoxide, disappearance of carbon monoxide from the blood in (GARNIER), A., ii, 560.
by *Enhydrina bengalensis* (ROGERS), A., ii, 676.
by phosphorus, occurrence of amino-acids in the urine of rabbits after (ABDERHALDEN and BERGELL), A., ii, 742.
Poisonous action of ions (LOEB and GIES), A., ii, 167.
Toxins in the tentacles of Actinians (RICHEZ), A., ii, 317.
African arrow (FAUST), A., i, 191.
cobra (KEYS and SACHS), A., ii, 444.
snake, constitution of (FLEXNER and NOGUCHI), A., ii, 500.
of the Australian tiger snake (*Hoplocephalus curtus*), action of, on nerve-cells (KILVINGTON), A., ii, 92.

Poisons, action of, on unicellular organisms (KORENTSCHEWSKY), A., ii, 313.

Polonium (GIESEL), A., ii, 20, 299, 603. rays from (BECQUEREL), A., ii, 257, 402. magnetic deviation and nature of certain rays from (BECQUEREL), A., ii, 256.

Polychlorides, action of phosphonium iodide on (E. & P. FIREMAN), A., ii, 644.

Polymeric compounds, decomposition of (KRAEMER), A., i, 332.

Polymorphous substances, transition of (MEYER), A., ii, 137.

Polypeptides and their derivatives, synthesis of (FISCHER), A., i, 465, 799 ; (FISCHER and OTTO), A., i, 800. See also Dipeptides.

Polysaccharides, complex, successive action of acids and soluble ferments on (BOURQUELOT and HÉRISSEY), A., i, 551.

Poppy seed and **Poppy-seed cake**, composition of (MACH), A., ii, 175.

Porin, **Porinin**, and **Porinic acid** (HESSE), A., i, 706.

Porphyrexide, constitution of, and chloro-, and its reactions (PILOTY and VOGEL), A., i, 523.

Porphyrexine. See 5:5-Dimethylhydantoin, 2:4-diimino-1-hydroxy-.

Porphyrindine and its diacetyl derivative (PILOTY and VOGEL), A., i, 524.

Potable water. See under Water.

Potassium, preparation of, from fused potassium peroxide (LORENZ and CLARK), A., ii, 425. spectrum of (RITZ), A., ii, 621. effect of a deficiency of, on plants (WILFARTH and WIMMER), A., ii, 506. manures, have, a direct action on cultivated plants ? (LUMIA), A., ii, 176.

Potassium salts, heat of solution of (VARALI-THEVENET), A., ii, 131. apparent loss of, by ignition (WOY), A., ii, 182. influence of, on the tone of plain muscle (STILES), A., ii, 163.

Potassium carbonate, electrolysis of (SALZER), A., ii, 129.

carbonates, double salts of, with magnesium carbonate (v. KNORRE), A., ii, 370.

chlorate, electrolytic reduction of (BURROWS), A., ii, 7 ; (BROCHET), A., ii, 210, 352 ; (TOMMASI), A., ii, 426.

decomposition of (SCOBAI), A., ii, 645.

Potassium chlorate and iodide and hydrochloric acid, velocity of reactions in solutions containing (BRAY), A., ii, 275.

perchlorate a plant poison (ULLMANN ; DIETRICH), A., ii, 571.

chloride, electrical conductivity of, in mixtures of water and ethyl alcohol (ROTH), A., ii, 126.

compounds of, with antimony trichloride (JORDIS), A., ii, 603.

manuring of barley with (DOLL), A., ii, 174.

ferric chloride, use of, in making the estimation of carbon in steel (SARGENT), A., ii, 332.

molybdenum double chloride (HENDERSON), P., 245.

dichromate, mechanism of the reduction of, by sulphurous acid (BASSETT), T., 692 ; P., 54.

action of, on alkali bromides (DE KONINCK), A., ii, 751.

cupric chromate, basic (GRÖGER), A., ii, 647.

fluoride, hydrofluoric acid, and boric acid, interaction of (ABEGG, FOX, and HERZ), A., ii, 540.

hydride, interaction of, with carbon dioxide (MOISSAN), A., ii, 365.

hydroxide, fused, electrolysis of (LE BLANC and BRODE), A., ii, 75.

dependence of the reactive power of, on the concentration (VAUBEL), A., ii, 425.

iodate, volumetric analyses with (ANDREWS), A., ii, 682, 686.

iodide, electrolysis of solutions of (FOERSTER and GYR), A., ii, 352.

rate of oxidation of, by chromic acid (DELURY), A., ii, 471.

ferrous sulphate, and chromic acid, rate of reactions in solutions containing (BENSON), A., ii, 534.

reaction between mercuric chloride and, and its analytical application (DE KONINCK and LEBRUN), A., ii, 42.

velocity and mechanism of the reaction between potassium ferricyanide and, in neutral aqueous solution (DONNAN and LE ROS-SIGNAL), T., 703 ; P., 120.

action of highly diluted, on plants (SUZUKI), A., ii, 173.

tetrachlorodinitroesqui-iridate (MIOLATI and GIALDINI), A., ii, 25.

permanganate, velocity of reaction between oxalic acid and (EHRENFELD), A., ii, 134.

Potassium permanganate, standardisation of, by means of oxalates (RUST), A., ii, 107; (DUPRÉ and MÜLLER), A., ii, 184.
nitrate, capillary rise of (BOTTOMLEY), T., 1424; P., 272.
barium nitrate (WALLBRIDGE), A., ii, 646.
iridium nitrite (LEIDIÉ), A., ii, 24.
oxide, preparation of (BADISCHE ANILIN- & SODA-FABRIK), A., ii, 724.
alum, occurrence of, as an efflorescence on bricks (KELLER), A., ii, 296.
 variation of angles in the crystals of (MIERS), A., ii, 472.
sulphates (STORTENBEKER), A., ii, 143.
thallium sulphates (MARSHALL), A., ii, 21.
persulphate, velocity of the reaction between hydrogen iodide, phosphorous acid and (FEDERLIN), A., ii, 14.
hyposulphite, synthesis of (MOISSAN), A., ii, 75.
Potassium cyanate and thiocyanate, action of *m*-xylylene bromide on (HALFPAAPI), A., i, 578.
cyanide, action of alkaline sugar solutions on (SCHUMACHER), A., ii, 188.
zinc cyanide (SHARWOOD), A., i, 684.
cadmium and zinc cobaltcyanides (FISCHER and CUNTZE), A., i, 77.
ferricyanide, velocity and mechanism of the reaction between, and potassium iodide in neutral aqueous solution (DONNAN and LE ROSSIGNOL), T., 703; P., 120.
 action of carbon monoxide on, in solution (MÜLLER), A., i, 238.
ferrocyanide, action of, on plant growth (SUZUKI), A., ii, 174.
ferro- and ferri-cyanides, action of iodine on (MATUSCHEK), A., i, 800.
mangano-, cobalti-, chromi-, and platino cyanides, action of carbon monoxide on (MÜLLER), A., i, 238.
selenocyanate, action of, on compounds of chloroacetic acid (FRERICHS), A., i, 609.
vanadiocyanide (PETERSEN), A., i, 612.
zinc ferrocyanides, composition of (MILLER and DANZIGER), A., i, 18.
 and silver thiocyanates and their solubility (FOOTE), A., i, 797.
Potassium, estimation of, by the modified Finkener method (NEUBAUER), A., ii, 181.
 estimation of small quantities of, colorimetrically (HILL), A., ii, 756.
Potassium, estimation of, gasometrically (DE SAPORTA), A., ii, 701.
 estimation of, in manures (SJOLLEMA), A., ii, 104; (HARE), A., ii, 511.
 estimation of, in soils (WILLIAMS), A., ii, 511; (COUSINS and HAMMOND), A., ii, 693.
 estimation of, in urine (AUTENRIETH and BERNHEIM), A., ii, 181; (HURTLEY and ORTON), A., ii, 695.
Potassium-tungsten bronze (v. KNORRE and SCHÄFER), A., ii, 23.
Potato leaves, ash constituents of, at different periods of growth and under different manurial conditions (SESSL), A., ii, 748.
Potatoes (BRÉAL), A., ii, 175.
 composition and digestibility of dried (KELLNER, VOLHARD, and HONCAMP), A., ii, 235.
Potato starch paste, action of malt diastase on (DAVIS and LING), P., 275.
Potentials. See Electrochemistry.
Precipitin reactions, inhibition of (MICHAELIS), A., ii, 497.
 influence of tryptic digestion on (OPPENHEIMER), A., ii, 665.
Precipitins (HUNTER), A., ii, 663.
 albumose and peptone (ROSTOSKI and SACCONAGHI), A., ii, 315.
 and lysins (FUHRMANN), A., ii, 227.
Pregnancy, molecular concentration of blood-serum in (FARKAS and SCIPADES), A., ii, 736.
Pressure, internal, of liquids, relation between Stefan's formulæ for the, and van der Waals' equation (BRANDT), A., ii, 641.
 negative and osmotic, relation between (HULETT), A., ii, 133.
Pressure coefficients of hydrogen and helium at constant volume and at different initial pressures (TRavers, SENTER, and JAQUEROD), A., ii, 9.
Primulaceæ, presence of volementol in (BOUGAULT and ALLARD), A., i, 162.
cycloPropane. See *cycloTrimethylene*.
Propane, $\alpha\beta$ -dihydroxy-, and its α -acetate (HENRY), A., i, 725.
Propenanicarboxylic acids. See Glutaric acid, and α -Methylsuccinic acid.
Propanehexacarboxylic acid, ethyl ester (KÖTZ and STALMANN), A., i, 742.
Propenylbenzene. See α -Allylbenzene.
Propionamide hydrobromide (WERNER), A., i, 235.
Propionic acid, latent heat of vaporisation of (LUGININ), A., ii, 7.
Propionic acid, ammonium salts (REIK), A., i, 308.
 lead salt (*lead tetrapropionate*) (COLSON), A., i, 396, 456, 601.

Propionic acid, ethyl ester, and ethyl acetate, vapour pressures and boiling points of mixtures of (YOUNG and FORTÉY), T., 47.

Propionic acid, β -amino- α -hydroxy-. See *isoSerine*.

α -nitro-, ethyl ester, and its sodium derivative (ULPIANI), A., i, 791.

β -thiol-, disulphide (FRIEDMANN), A., i, 75.

Propiopionic acid (CLOVER and RICHMOND), A., i, 397.

Propionic peroxide and its hydrolysis (CLOVER and RICHMOND), A., i, 397.

Propionylbenzyl cyanide. See Benzyl ethyl ketone, cyano-.

Propionylcamphor (MALMGREN), A., i, 711.

Propionylglycylglycine, α -bromo-, and its ester (FISCHER), A., i, 799.

Propionylphenylacetamide (DIMROTH and FEUCHTER), A., i, 630.

Propionylphenylacetic acid, ethyl ester, action of phosphorus pentabromide (DIMROTH and FEUCHTER), A., i, 631.

and the action of phosphorus pentachloride on (DIMROTH and FEUCHTER), A., i, 629.

Propiophenone, condensation of, with benzylideneacetophenone (ABELL), T., 360; P., 17.

semicarbazone (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 205.

Propiophenone, p -amino-, and its salts, and bromo-, chloro-, and acyl derivatives of (CHATTAWAY), P., 124.

β -hydroxy-. See Methylolacetophenone.

Propolis (GRESHOFF and SACK), A., i, 602.

Propyl alcohol, condensation of, with heptyl alcohol (GUERBET), A., i, 61.

isoPropylacetone. See Methyl *isobutyl* ketone.

β -nitroso-. See Methyl β -nitroso-*isobutyl* ketone.

p -*iso-Propylallylbenzene* (KUNCKELL), A., i, 617.

isoPropylamine, oxidation of (BAMBERGER and SELIGMAN), A., i, 323.

isoPropylbenzamarone (KLAGES and TETZNER), A., i, 101.

n-Propylbenzene (*phenylpropane*) (KLAGES), A., i, 329.

n-Propylbenzene, *p*-amino-, *p*-iodoso-, and *p*-iodoxy- (WILLGERODT and SCKERL), A., i, 746.

tetrachloro- and dichlorodibromo- (CHARON and DUGOUJON), A., i, 240.

n-Propylbenzene, *p*-iodo-, containing polyvalent iodine, derivatives of (WILLGERODT and SCKERL), A., i, 746.

isoPropylbenzene, $\alpha\beta$ -dibromo- (TIFENEAU), A., i, 241.

α -*iso-Propylbenzylidenedeoxybenzoin and its isomeride (KLAGES and TETZNER), A., i, 101.*

4-p-iso-Propylbenzylisoquinoline and its salts (RÜGHEIMER and ALBRECHT), A., i, 440.

isoPropylisobutylbenzene (SCHUBERT), A., i, 626.

isoPropylisobutylsuccinic acids (*nonanedicarboxylic acids*), *cis*- and *trans*- (BEATTY), A., i, 726.

isoPropylbutyric acid. See Heptoic acid.

C-Propylcamphocarboxylic acid, methyl ester, and its isomeride (HALLER), A., i, 503.

Propylcamphor, cyano-, isomeric, and their rotation (HALLER), A., i, 503.

isoPropylcamphor, hydroxy- (MALMGREN), A., i, 103.

p-iso-Propyl- α -chlorobenzyldeoxybenzoin (KLAGES and TETZNER), A., i, 101.

Propylecyanoacetamide (GUARESCHI), A., i, 737.

Propylene, formation of, from trimethylene (TANATAR), A., i, 1.

Propylene chlorohydrins (HENRY), A., i, 2, 725.

Propylene derivatives (HENRY), A., i, 725.

aromatic (HELL and BAUER), A., i, 242, 479.

Propylenedicarboxylic acids. See:— Citraconic acid.
Glutaconic acid.

Propylenepentacarboxylic acid. See Dicarboxyaconitic acid.

Propylenetricarboxylic acid. See Aconitic acid.

α -*iso-Propylglutaric acid* (*hexanedicarboxylic acid*) (WALLACH, COLLMAND, and THEDE), A., i, 568.

3-iso-Propylindolinone and its methyl ether, and acetyl, dibromo-, and silver derivatives (SCHWARZ), A., i, 854.

2-Propyloxy- α -naphthoic acid (BODROUX), A., i, 420.

β -Propyloxy- β -phenylacrylic acid, α -cyano-, methyl ester (SCHMITT), A., i, 399.

6-Propyloxy-2-propylquinol (THOMS), A., i, 558.

***p*-Propylphenyl-*o*-tolylidinium** hydroxide and salts (WILLGERODT and SCKERL), A., i, 747.

***n*-Propylphosphine** (PARTHEIL and GRONOVER), A., i, 801.

Propylphthalimonomalic acid, γ -cyano-, ethyl ester, and its hydrolysis (SORENSEN), A., i, 834.

Propylpropionic acids. See Hexinoic acids.

3-Propylpyrazolone (BOUVEAULT and BONGERT), A., i, 143, 144.

5-Propyltrioxazoline, 2-thiol- (ROUX), A., i, 463.

β-Propylvalerylcarbamide (GEBRUDER VON NIESSEN), A., i, 798.

Prostate, calculi from the (PUAUX), A., ii, 444.

Protagon of the brain (LESEM and GIES), A., ii, 90.

Protamines and **Protones** (GOTO), A., i, 303.

Proteid base, $C_{56}H_{116}O_9N_{29}$, from the sperm of the tunny fish (ULPIANI), A., i, 215.

matter, production of hydrogen sulphide from, and the influence of temperature on it (ABELOUS and RIBAUT), A., ii, 605.

molecule, the anti-group in the (ROTARSKI), A., i, 667.

the carbohydrate group in the (OSBORNE and HARRIS), A., i, 586.

putrefaction, influence of carbohydrates on (SIMNITZKI), A., i, 781.

tryptophan, the precursor of indole in (ELLINGER and GENTZEN), A., i, 781.

reaction involving the use of chromate (GIES), A., ii, 399.

synthesis in the animal body (HENDERSON and DEAN), A., ii, 668.

Proteids (KUTSCHER), A., i, 666.

in plants (NEDOKUCHAEFF), A., ii, 508.

synthesis of (WALTHER), A., i, 67.

formation of, in Fungi (LOEW), A., ii, 678.

formation of, in plants (GODELWSKI), A., ii, 678.

synthesis of, by plants (LAURENT and MARCHAL), A., ii, 506.

decomposition and regeneration of, in plants (BALICKA-IWANOWSKA), A., ii, 449.

specific rotation of some vegetable (OSBORNE and HARRIS), A., i, 872.

absorption of (OPPENHEIMER), A., ii, 738; (ASCOLI and VIGANO), A., ii, 739.

fate of, introduced through the alimentary canal and otherwise (OPPENHEIMER), A., ii, 738.

passage of, through the placental walls (ASCOLI), A., ii, 87.

Proteids and proteid-assimilation, biological relation of (LEVENE and STOOKEY), A., ii, 309.

containing sulphur, physiological relations of (FRIEDMANN), A., i, 75, 301.

digestion of, by the pancreas ferments (FISCHER and ABDERHALDEN), A., ii, 666.

influence of different, on fats (PASTROVICH and UZER), A., ii, 249.

chemical relations between aniline dyes and (HEIDENHAIN), A., i, 586.

behaviour of, towards electrolytes (PAULI), A., i, 299.

action of iodine bromide on (MOUNERY-RAT), A., i, 665.

iodation of (SCHMIDT), A., i, 135, 450.

the iodine-binding group in (OSWALD), A., i, 450.

iodised, decomposition products of (OSWALD), A., i, 300.

oxidation of, by Jolles' method (LANZER), A., ii, 584.

action of yeast on (BOKORNY), A., ii, 230.

decomposition of, by Bacteria (TAYLOR), A., ii, 169; (EMMERLING), A., ii, 229.

nitrogen in (OSBORNE and HARRIS), A., i, 585.

blood, in alcaptonuria (ABDERHALDEN and FALTA), A., ii, 663.

serum, refraction coefficient of (REISS), A., ii, 659.

in body fluids (JOACHIM), A., ii, 312.

in exudations (MORITZ), A., ii, 312.

precipitable by acetic acid in pathological urines (MATSUMOTO), A., ii, 501.

the "gold number" of (SCHULZ and ZSIGMONDY), A., i, 135.

precipitation of, by alcohol and other reagents (TEBB), A., i, 781.

vegetable, precipitation limits with ammonium sulphate of some (OSBORNE and HARRIS), A., i, 871.

detection of, in urine (BERNARD), A., ii, 119.

estimation of, in faeces (ZAITSCHEK), A., ii, 743.

estimation of, volumetrically, in milk (DENIGES), A., ii, 460.

estimation of, in milk and cheese (VAN SLYKE and HART), A., ii, 399.

Proteolysis, influence of oxygen on, in the presence of chloroform (MALFITANO), A., ii, 159.

pancreatic, formation of dextrose from the end-products of (STILES and LUSK), A., ii, 668.

Proteolysis, peptic (GIES), A., ii, 559.
influence of the hydrogen ion in (GIES), A., ii, 309.

Proteoses, physiological action of (MENDEL and UNDERHILL), A., ii, 315 ; (UNDERHILL), A., ii, 661.

Proto-blue. See Tetramethyl-diamino-triphenylcarbinol, 3:4-dihydroxy-.

leucoProto-blue. See 4':4"-Tetramethyl-diaminotriphenylmethane, 3:4-dihydroxy-.

Protocatechuic acid, formation of, from quinic acid by a mould (EMMERLING and ABDERHALDEN), A., ii, 503.
derivatives of (PERKIN and SCHIESS), P., 14.

Protocatechuic aldehyde, and its dibenzoyl, and 2- and 3-nitro-derivatives, and the dimethyl ether of the 2-nitro-compound, and dinitro-derivative of the dibenzoyl compound (HAYDUCK), A., i, 826.
indogenide of (NOELTING), A., i, 198.

Protococaic and Protoisococaic acids (HESSE), A., i, 192.

Proto- α -lichesteric acid and its methyl ester (HESSE), A., i, 704.

Protopapaverine and its salts (HESSE), A., i, 773.

Protoplasm and enzymes (BOKORNY), A., ii, 324.
action of ethyl alcohol on (LEE), A., ii, 314.

Proto-red and its acyl derivatives (LIEBERMANN), A., i, 861.

leucoProto-red. See 4':4"-Tetramethyl-diaminotriphenylmethane, 3:4:2':2"-tetrahydroxy-.

Protrypsin, kinase, and antikinase (DASTRE and STASSANO), A., ii, 497.

Prussian blue (CHRÉTIEN), A., i, 685.
preparation of (MATUSCHEK), A., i, 800.
solubility of (WYROUBOFF), A., i, 18.
estimation of, in spent gas-purifying material (SCHWARTZ ; LÜHRIG), A., ii, 111.

Prussic acid. See Hydrocyanic acid under Cyanogen.

Pseudo-acids, diagnosis of (MULLER), A., i, 78.
optical method for the recognition of (MULLER and BAUER), A., ii, 705.

Pseudocymopterus anisatus, oil of (SCHIMMEL & CO.), A., i, 187.

Pseudogaylussite from the Clyde (FLETT and POLLARD), A., ii, 379.

Pseudophilipsite from the neighbourhood of Rome (ZAMBONINI), A., ii, 656.

Puerperal eclampsia (CHARRIN and ROCHE), A., ii, 564.

Pulegene, and its constitution, and its nitrosochloride, and nitrolepiperidide (WALLACH, COLLmann, and THEDE), A., i, 568.

Pulegenic acid, and its constitution, and its chloride, amide, anilide, lactone, and methyl ester (WALLACH, MEYER, and COLLmann), A., i, 567.

dihydroxy-, and its methyl ester and benzoyl derivative (WALLACH, MEYER, and COLLmann), A., i, 567.

Pulegone, oxidation of (MARKOWNIKOFF), A., i, 843.

Pulegenol and its phenylurethane (WALLACH, COLLmann, and THEDE), A., i, 568.

Pulegenone, and its constitution, and its semicarbazone and oxime and the benzoyl derivative of the oxime (WALLACH, COLLmann, and THEDE), A., i, 568.

Purgatives, action of saline (MACCALLUM), A., ii, 742.

Purine, 8-thio-2:6-dihydroxy-. See Xanthine, thio-.

Purine derivatives, estimation of, in animal organs by aid of the method of corrected values (BURIÁN and HALL), A., ii, 617.
estimation of, in urine (GARNIER), A., ii, 583.
excretion in man (BURIÁN and SCHUR), A., ii, 313.

Purpurogallin, and its acetyl derivative, formation of, by the electrolytic oxidation of pyrogallol (A. G. and F. M. PERKIN), P., 58.
and its tetra-acetyl, tribenzoyl, and dibromo-derivatives, trimethyl ether and its acetyl compound, and potassium salt (PERKIN and STEVEN), T., 192.

Purpurogallin carboxylic acid (PERKIN and STEVEN), T., 200.

Purpurogallone and isoPurpurogallone and their acetyl derivatives (PERKIN and STEVEN), T., 197.

Pyknochlorite from the Radauthal, Harz (FROMME), A., ii, 382.

Pyknometers (LEIMBACH), A., ii, 132.

Pyramidone, identification of (RODILLON), A., ii, 343.

Pyranol series, new compounds of the (FOSSE), A., i, 49, 357, 510 ; (FOSSE and ROBYN), A., i, 646.
polymerisation and fission of the molecule in the (FOSSE), A., i, 357.

Pyrazole derivatives, wandering of a methyl group in (KNORR), A., i, 528.

Pyrazoles, new synthesis of (MOUREU and BRACHIN), A., i, 581.
formation of, from 1:3-diketones and alkyl diazoacetates (KLAGES and RÖNNEBURG), A., i, 528.

Pyridazine, synthesis of, and its salts (MARQUIS), A., i, 370.
derivatives, synthesis of (PAAL and DENCKS), A., i, 289; (PAAL and UBBER), A., i, 290; (PAAL and KOCH), A., i, 722.

Pyridine, constitution of (SCHOLTZ and WIEDEMANN), A., i, 436.
physical constants of (CONSTAM and WHITE), A., i, 276.
action of nitrogen tetroxide on (SPENCER), P., 79.
compounds of, with bismuth haloids (MONTEMARTINI), A., i, 111.
compounds of, with gold chloride (FRANÇOIS), A., i, 652.
compounds of metallic haloids with (RENZ), A., i, 774.
compounds of, with metallic salts of organic acids (REITZENSTEIN), A., i, 111.
salts, additive products of, with quinone (ORTOLEVA), A., i, 851.
estimation of, in aqueous solution (FRANÇOIS), A., ii, 704.

Pyridine, chloro-derivatives of (SELL and DOOTSON), T., 396, P., 48.
2:3:4:5-tetrachloro-, interaction of, with ethyl sodiomalonate (SELL and DOOTSON), T., 396, P., 48.
2:3:5-trichloro-4-hydroxy- (SELL and DOOTSON), T., 400; P., 48.
2-, 3-, and 4-cyano-derivatives of, and their salts (MEYER), A., i, 197.

Pyridineacetyl oxime chloride (IHLDER), A., i, 366.

Pyridine-3-carboxylic acid. See Nicotinic acid.

Pyridine-4-carboxylic acid. See *iso-Nicotinic acid*.

Pyridinecarboxylic acids, preparation of betaines of (MEYER), A., i, 364.

Pyridinecarboxylic acids, amino-, neutralisation of (MEYER), A., i, 277.

α-Pyridone, constitution of (KAUFFMANN), A., i, 514.

Pyridone haloid salts (PETRENKO-KRITSCHENKO and STAMOGLU), A., i, 197.

Pyridyl-4-acetic and -4-malonic acids, 2:3:5-trichloro- (SELL and DOOTSON), T., 398; P., 48.

4-Pyridyltert.-butantriol and its hydrochloride and triiodohydrin (KOENIGS and HAPPE), A., i, 851.

α-Pyridyl methyl ketone, condensation products of, with benzaldehyde and *o*-nitrobenzaldehyde (C. and A. ENGLER), A., i, 113.

α-Pyridyl o-nitrophenyllactyl ketone and its salts (C. and A. ENGLER), A., i, 113.

Pyridylsemicarbazidecarboxylic acid (MARCKWALD and RUDZIK), A., i, 515.

α-Pyridyl styryl ketone and its *o*-nitro-derivatives, and their salts (C. and A. ENGLER), A., i, 113.

Pyrimidine derivatives (BYK), A., i, 657.
feeding experiments with (STEUDEL), A., ii, 669.

Pyrimidine, amino-, chloro-, chloroamino-, iodoamino-, and thio-derivatives, and their salts (BÜTTNER), A., i, 659.

2:4:6-trichloro-, derivatives of (BÜTTNER), A., i, 658.

6-iodo-2-amino-4-hydroxy- (BÜTTNER), A., i, 659.

Pyrites, estimation of coal in (TREADWELL and KOCH), A., ii, 391.

Pyrogallol (1:2:3-trihydroxybenzene), formation of purpurogallin by the electrolytic oxidation of (A. G. and F. M. PERKIN), P., 58.

ethers of (HERZIG and POLLAK), A., i, 346.

di- and tri-methylamine derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 558.

Pyrogallolcarboxylic acid, action of hydrated bismuth oxide on (THIBAUT), A., i, 701.

alkyl derivatives of (HERZIG and POLLAK), A., i, 89, 346.

isomeric ethers of (HERZIG and POLLAK), A., i, 89.

Pyrogallolsulphonic acids, alkaline-earth salts of (DELAGE), A., i, 416.
action of alkaline-earth bases on (DELAGE), A., i, 482, 559.

Pyrogenetic contact reactions of organic compounds (IPATIEFF), A., i, 593, 594; (IPATIEFF and HUHN), A., i, 595; (IPATIEFF and LEONTOWITSCH), A., i, 598.

Pyrogenetic reactions by means of the electric current (LOB), A., i, 20, 806.

Pyrometer, new form of (LUMSDEN), T., 349; P., 41.

Pyromucic acid, amino-, ethyl ester, and its acyl derivatives (MARQUIS), A., i, 644.

nitro-, and its ethyl ester (MARQUIS), A., i, 49.

isoPyromucic acid, bromo-, and its acetyl and benzoyl derivatives (CHAVANNE), A., i, 270.

Pyrophosphoric acid. See under Phosphorus.

Pyrophthalines, α - and β -, and their salts (v. HUBER), A., i, 577.

Pyrophthalone and its anil (v. HUBER), A., i, 576; (EIBNER), A., i, 644.

*iso***Pyrophthalone** and its anil, oxime, phenylhydrazone, and bromo-, and nitro-derivatives (v. HUBER), A., i, 577; (EIBNER), A., i, 644.

n-Pyrotartaric acid. See Glutaric acid.

Pyrotartaric acids, active and racemic, and their anhydrides (MARKOWNIKOFF), A., i, 843.

Pyrrole, action of sulphuryl chloride on (MAZZARA), A., i, 51.

action of sulphuryl chloride and bromine on (MAZZARA), A., i, 274.

Pyrrole, pentachloro- (MAZZARA), A., i, 51.

chlorotribromo-, and dichlorodibromo- (MAZZARA), A., i, 274.

Pyrroleazobenzenephencarbamide (PLANCHER and SONCINI), A., i, 449.

2-Pyrrolidinecarboxylic acid, synthesis of, and its salts (WILLSTÄTTER and ETTLINGER), A., i, 362.

Pyrrolidine-2:2-dicarboxylic diamide and its salts (WILLSTÄTTER and ETTLINGER), A., i, 362.

Pyruvic acid, action of carbamide on (SIMON), A., i, 314.

action of hydrogen sulphide on (DE JONG), A., i, 146.

transformations of salts of (DE JONG), A., i, 146.

Pyruvic acid, propyl ester, semicarbazone of (BAILEY), A., i, 130.

Pyruvylpyruvic acid, esters, phenyl-imino- and tolylimino-derivatives, isomeric phenylhydrazones of (SIMON), A., i, 55.

Q.

Quartz, expansion of fused (HOLBORN and HENNING), A., ii, 272.

melting of, in the electric furnace (HUTTON), A., ii, 289.

and amorphous silica, separation of (SJOLLEMA), A., ii, 241.

Quaternary salts, isomeric, attempts to prepare (BARROWCLIFF and KIPPING), T., 1141; P., 202.

Quercitin (PERKIN and PHIPPS), P., 284.

Quillajic acid (HOFFMANN), A., i, 846.

Quinaldine, condensation of, with aldehydes (LOEW), A., i, 577.

Quinaldine, 8-chloro-2-thiol- (FISCHER, BERCKHEMER, and ULRICH), A., i, 53.

Quinaldine, 3-cyano-, and its 4-carboxylic acid and their salts (v. WALTHER), A., i, 652.

6-nitro- (COHN and SPRINGER), A., i, 493.

Quinazoline and its salts (GABRIEL), A., i, 446.

Quinic acid, rotation of, action of inorganic compounds on the (RIMBACH and SCHNEIDER), A., i, 624.

conversion of, into protocatechuic acid by a mould (EMMERLING and ABDERHALDEN), A., ii, 503.

influence of, on hippuric acid excretion (HUPFER), A., ii, 442.

influence of, on uric acid excretion (TALTAVAL and GIES), A., ii, 563.

Quinidine, thermochemistry of (BERTHELOT and GAUDECHON), A., ii, 197.

nitroprusside (GRESHOFF), A., i, 848.

Quinine, thermochemistry of (BERTHELOT and GAUDECHON), A., ii, 197.

carbonate. See Aristochin.

hydrobromide (HESSE), A., i, 111.

nitroprusside (GRESHOFF), A., i, 848.

detection of, in organic secretions by means of its fluorescing properties (DENIGÈS), A., ii, 618.

estimation of, in mixtures of cinchona alkaloids and in cinchona bark (HILLE), A., ii, 396.

quantitative separation of, from strychnine (HARRISON and GAIR), A., ii, 704.

Quinol, solubility of, in sulphur dioxide near its critical point (CENTNERSZWER and TETELOW), A., ii, 716.

indirect oxidation of, by salts of the rare earths (JOB), A., ii, 214.

carbonate (BISCHOFF and v. HEDENSTRÖM), A., i, 26.

mono- and di-methylamine derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 559.

oxalate and ethyl oxalate of (BISCHOFF and v. HEDENSTRÖM), A., i, 27.

succinate of (BISCHOFF and v. HEDENSTRÖM), A., i, 85.

Quinol, hydroxy-, trialkyl ethers of (KULKA), A., i, 625.

Quinols, synthesis of (BAMBERGER and BLANGEY), A., i, 557.

ψ **Quinols**, imino- (BAMBERGER), A., i, 83.

Quinoline, compounds of, with bismuth haloids (MONTEMARTINI), A., i, 111.

compounds of metallic haloids with (RENZ), A., i, 774.

compound of, with triphenylcarbinol (TSCHITSCHIBABIN), A., i, 88.

Quinoline methiodides, action of alkalis on (DECKER), A., i, 516.
 salts, additive products of, with quinone (ORTOLEVA), A., i, 851.
Quinoline, 2:8-*tribromo*- and 2-chloro-8-nitro- (DECKER and STAVROLOPOULOS), A., i, 719.
 6-bromo-2-thiol- (FISCHER, BERCKHEMER, and ULRICH), A., i, 53.
 2:6- and 2:7-*di*-chloro-, 6-chloro-2-amino-, and 2-chloro-6-bromo- (FISCHER, BERCKHEMER, and ULRICH), A., i, 53.
 4-cyano-, and its salts (MEYER), A., i, 197.
 7-hydroxy-, 2:4-disubstituted derivatives of (BÜLOW and ISSLER), A., i, 718.
 8-nitro-, methiodide (DECKER), A., i, 278.
isoQuinoline, formation of (GOLDSCHMIDT), A., i, 440.
Quinolines, synthesis of, from dinitriles (v. WALTHER), A., i, 652.
 acetylation of some (CYBULSKY), A., i, 775.
Quinoline- and *isoQuinoline*-acetic acids, ethyl esters, and their salts (IHLDER), A., i, 116.
Quinolinebetaine and *isoQuinolinebetaine* and their salts (IHLDER), A., i, 116.
Quinoline- and *isoQuinoline*-bromoacetophenones and their salts and oximes (IHLDER), A., i, 365.
Quinoline- and *isoQuinoline*-chloroacetophenones (IHLDER), A., i, 365.
isoQuinolinephenacyloxime chloride, action of phosphorus pentachloride on (IHLDER), A., i, 365; (SCHMIDT), A., i, 427.
Quinolphthalein and its oximes and their ethers, constitution of (MEYER and SPRENGLER), A., i, 833.
Quinolphthalincarboxylic acid, ethyl ester (MEYER and SPRENGLER), A., i, 833.
Quinone, additive products of, with salts of pyridine and quinoline (ORTOLEVA), A., i, 851.
o-**Quinone**, *tetrabromo*-, action of aniline on (JACKSON and PORTER), A., i, 102.
 additive compounds of (JACKSON and PORTER), A., i, 266.
Quinones, micro-chemical analysis of (BEHRENS), A., ii, 246.
o-**Quinonediazide**, 3-*mono*- and *tri*-bromo- (ORTON), T., 811; P., 162.
 3:5-*dibromo*- and -*dichloro*- (ORTON), A., i, 297; (HANTZSCH), A., i, 665.
p-**Quinonediazide**, 3:5-*dibromo*-2-nitro- (ORTON), T., 810; P., 162.

Quinonedioxime, benzoyl derivatives of (OLIVERI-TORTORICI), A., i, 838.
Quinonephenylimine, 3:5-*di*- and *tri*-chloro-2':4'-*dinitro*- (REVERDIN and CRÉPIEUX), A., i, 857.
Quinoxaline, $C_{25}H_{29}O_2N_3$, from benzil and 6-nitro-4-tert.-amyl-*o*-phenylenediamine (ANSCHÜTZ and RAUFF), A., i, 556.
 $C_{20}H_{10}O_2N_2Cl_4$ and $C_{20}H_{10}O_2N_2Br_4$, from tetrachloro- and tetrabromodi-*p*-hydroxybenzil (ZINCKE and FRIES), A., i, 183.

R.

Racemic acid, nature of the inactive dimethylene compound of (RINGER), A., i, 149.
Racemic aldehydes and ketones, resolution of (NEUBERG), A., i, 461.
 compounds, separation of, into optically active components (ERLENMEYER), A., i, 412.
Racemisation, catalytic, of amygdalin (WALKER), T., 472.
Racism, partial (LADENBURG and BOBERTAG), A., i, 575.
Radiations, **Radioactive substances**, and **Radioactivity**. See Photochemistry.
Radicles, unsaturated, the negative nature of (HENRICH), A., ii, 16; (VORLÄNDER), A., ii, 67.
Radium (GIESEL), A., ii, 20.
 atomic weight of (WATTS), A., ii, 654.
 position of, in the periodic system (RUNGE and PRECHT), A., ii, 346.
 Bunsen flame spectrum of (GIESEL), A., ii, 20; (RUNGE and PRECHT), A., ii, 346.
 spark spectrum of (RUNGE and PRECHT), A., ii, 621.
 radioactivity of, compared with that of thorium (RUTHERFORD and SODDY), A., ii, 347.
 rate of decrease of radioactivity induced by, in a closed space (CURIE), A., ii, 50, 255.
 induced radioactivity on solid substances by the action of (CURIE and DANNE), A., ii, 255.
 emanations of (CURIE), A., ii, 255; (CROOKES), A., ii, 461.
 emanation substance from (GIESEL), A., ii, 193.
 emanation of, and its coefficient of diffusion into air (CURIE and DANNE), A., ii, 462.
 rays from (BECQUEREL), A., ii, 257.

Radium, property of the α -rays of (BECQUEREL), A., ii, 523.
 magnetic deviation and nature of certain rays from (BECQUEREL), A., ii, 256.
 magnetic and electric deviations of the easily absorbed rays from (RUTHERFORD), A., ii, 256.
 influence of the rays from, on solid paraffin (BECQUEREL), A., ii, 465.
 oxidising and physiological action of rays from (HARDY and WILLCOCK), A., ii, 622.
 chemical energy in connection with the phenomena exhibited by (BEKE TOFF), A., ii, 623.
 production of helium from (RAMSAY and SODDY), A., ii, 622.
 influence of, on the growth of animal tissues (BOHN), A., ii, 497.

Radium salts, heat spontaneously developed by (CURIE and LABORDE), A., ii, 846.
 action of, on globulin (HARDY), A., i, 588.

Radium bromide, experiments with (INDRICKSON), A., ii, 346.
 crystalline form of (RINNE), A., ii, 369.

Raffinose (*melitose*, *melitriose*), estimation of (WISKE), A., ii, 188.

Rain water. See under Water.

Ramalic acid (HESSE), A., i, 703.

Raspberries, natural occurrence of salicylic acid in (WINDISCH), A., ii, 567.

Rate of reactions. See Affinity.

Rays. See Photochemistry.

Reducing agent, titanium sesquioxide as a (KNECHT), A., ii, 217.

Reduction and oxidation, theory of some technical processes of (BODLÄNDER), A., ii, 59.

of metallic haloids by hydrogen (JOUNIAUX), A., ii, 413.

Refraction. See Photochemistry.

Refrigerator, new (BRACONNIER and CHATELAIN), A., ii, 643.

Reh, analysis of (HILL), P., 58.

Rennin, influence of, on milk digestion (HAWK), A., ii, 669.
 the precipitate produced by adding, to solutions of albumose (LAWROFF and SALASKIN), A., i, 136.

Resacetoin, Nencki and Sieber's. See 2-Phenyl-4-methylene-1:4-benzopyranol, *7:op-trihydroxy-*.

Resin from a passion flower (JUMELLE), A., i, 712.

Resin of *Pinus palustris* (TSCHIRCH and KORITSCHONER), A., i, 105.
 rimu (EASTERFIELD and ASTON), P., 190.

Resins, fossil, chemical constants of (WORSTALL), A., ii, 764.
 natural (BAMBERGER and RENEZEDER), A., i, 643.
 See also Copals.

Resin oil, detection of, in mineral oils (HALPHEN), A., ii, 186.
 separation of mineral oil from (HERZFELD), A., ii, 186.

Resorcinol (1:3-dihydroxybenzene), condensation of, with *tert*-butyl iodide (GUREWITSCH), A., i, 27.
 condensation of, with benzil (v. LIEBIG), A., i, 828; (v. LIEBIG and HURT), A., i, 829.
 carbonate (BISCHOFF and v. HEDENSTRÖM), A., i, 26.
 dimethylamine derivative of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 559.
 monomethyl ether, action of ethyl chlorofumarate and ethylphenylpropionate on (RUHEMANN), T., 1132; P., 202.
 oxalate of (BISCHOFF and v. HEDENSTRÖM), A., i, 27.
 condensation product of, with methyl-acetylacetone, and with ethyl benzoyl acetoacetate (BÜLOW), A., i, 272.
 4-amino-, and its tribenzoyl and tri-*o*-, *m*-, and *p*-nitrobenzoyl derivatives (HENRICH and WAGNER), A., i, 88.
 chloronitro-, dimethyl and diethyl ethers, and their acetyl derivatives (BADISCHE ANILIN- & SODA-FABRIK), A., i, 482.
 4-nitro-, preparation of, and 4-amino- and its tetra-acetyl derivative (HENRICH), A., i, 88.

Resorcinolanthraquinone and its diacetyl derivative (SCHARWIN and KUSNEZOF), A., i, 640.

Resorcinolbisazotitolysulphonic acid, barium salt (ELBS and WOHLFAHRT), A., i, 213.

α -Resorcylic acid, methyl ester, dimethylamine derivative of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 559.

β -Resorcylic acid, derivatives of (PERKIN and SCHIESS), P., 14.

Respiration, artificial, influence of, on strychnine spasms (GIES and MELTZER), A., ii, 317.
 in phloridzin diabetes (MENDEL and LUSK), A., ii, 674.

Respiration of fruits containing volatile esters during the period of maturity in which they emit perfume, influence of a momentary increase in the tension of oxygen on the (GERBER), A., ii, 387.

of odoriferous fruits at the time of complete maturity when placed, in the green and odourless state, in air enriched in oxygen (GERBER), A., ii, 387.

of sugar-beet root (STROJIMER), A., ii, 563.

intramolecular, of the sugar beet (STOKLASA, JELINEK, and VITEK), A., ii, 746.

Respiratory exchange, influence of compressed air on (HILL and MACLEOD), A., ii, 492.

influence of an atmosphere of oxygen on the (HILL and MACLEOD), A., ii, 30.

and temperature in hibernating animals (PEMBREY), A., ii, 305.

Revertose and its osazone (HILL), T., 589 ; P., 99.

Rhamnose, action of hydrogen peroxide on, in presence of ferrous sulphate (MORRELL and CROFTS), T., 1285 ; P., 208.

Rhein and its acetyl derivatives (TSCHIRCH and HEUBERGER), A., i, 107 ; (OESTERLE), A., i, 356.

Rheoanthraglucoside and **Rheotannoglucoside** (TSCHIRCH and HEUBERGER), A., i, 108.

Rheosmin (GILSON), A., i, 355.

Rheumatism, acute, pathology of (WALKER and RYFFEL), A., ii, 673.

Rhodamine, $C_{24}H_{22}O_4N_2Cl_2$, from 2'-dimethylamino-3'-hydroxybenzoyl-3;6-dichlorobenzoic acid and *m*-dimethylaminophenol (SEVERIN), A., i, 262.

Rhodanic acid, condensation products of, with aldehydes (ZIPSER), A., i, 273 ; (ANDREASCH and ZIPSER), A., i, 855.

Rhodeonic acid, salts and lactone (VOTOCÉK), A., i, 67.

*iso***Rhodeonic acid** and its salts (VOTOCÉK), A., i, 68.

Rhodeose, oxidation products of (VOTOCÉK), A., i, 67.

*iso***Rhodeose** and its phenylosazone (VOTOCÉK), A., i, 68.

Rhodium, pure (JÖRGENSEN), A., ii, 300.

Rhubarb, Chinese (TSCHIRCH and HEUBERGER), A., i, 107.

Ricin, action of, on fishes' blood (FRAENKEL), A., ii, 663.

Ricinoleic acid and its acyl derivatives, esters (WALDEN), A., i, 311.

Rickardite from Colorado (FORD), A., ii, 302.

Rigor mortis (STEYRER ; FOLIN), A., ii, 674.

Rimic acid and its nitro-derivatives (EASTERFIELD and ASTON), P., 190.

Ring compounds, carbon, formation of (KÖTZ), A., i, 700.

Rings, formation of (MEYER), A., i, 442.

Rock powders, cause of the cementing value of (CUSHMAN), A., ii, 474.

Rocks, melting points of (DOELTER), A., ii, 26.

decomposed, absorption by (DITTRICH), A., ii, 176.

estimation of manganese in (DITTRICH), A., ii, 107.

Römerite, composition and synthesis of (SCHARIZER), A., ii, 555.

Bösslerite and arsenical struvite, simultaneous production of (DE SCHULTEN), A., ii, 655.

Rosaniline, thermochemical study of (SCHMIDLIN), A., ii, 633.

Pararosaniline, thermochemical study of (SCHMIDLIN), A., ii, 633.

Roscoelite from Western Australia (PEARCE), A., ii, 380.

Roses, oil of, Bulgarian (SCHIMMEL & CO.), A., i, 187.

Rotation. See Photochemistry.

Rottenstone from South Wales (POLLARD), A., ii, 383.

Rubidium bromide, double salt of, with mercuric iodide (GROSSMANN), A., ii, 476.

carbide (MOISSAN), A., i, 546.

hydride (MOISSAN), A., ii, 367.

iridium alum (MARINO), A., ii, 376.

thallium sulphates (MARSHALL), A., ii, 21.

thorium sulphate (MANUELLI and GASPARINETTI), A., ii, 375.

Rubidium acetylidyne acetylene (MOISSAN), A., i, 545, 595.

Rubidium ammonium, preparation and properties of (MOISSAN), A., ii, 477.

Rue, oil of, German (HOUBEN), A., i, 47.

Rufen and **Rufindan** (v. KOSTANECKI and ROST), A., i, 646.

Ruthenium silicide, preparation and properties of (MOISSAN and MANCHOT), A., ii, 604.

Rye, manurial experiments on, with different forms of nitrogen (CLAUSEN), A., ii, 174.

Rye bran, feeding experiments on the utilisation of (KÖHLER, HONCAMP, JUST, VOLHARD, and WICKE), A., ii, 681.

S.

Saccharic acid, methylene compounds of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 149.
"Saccharin," detection of, in beers, wines, etc. (BOUCHER and DE BOUNGE), A., ii, 517.
 detection of, in milk (FORMENTI), A., ii, 48.
Saccharins, meta- and para-. See Metasaccharin and Parasaccharin.
Saccharomyces, results obtained by the use of, acclimatised to the volatile toxic substances present in beet molasses (ALLIOT), A., ii, 386.
Saccharose. See Sucrose.
Safety-tube and wash-bottle (VIGREUX), A., ii, 643.
Safrole from the oil of *Cinnamomum pedatinervium* of Fiji (GOULDING), T., 1099; P., 201.
isoSafrole, derivatives of (POND and SIEGFRIED), A., i, 417.
Salicin, amount of, in different parts of *Salix purpurea* (WEEVERS), A., ii, 232.
 action of emulsin on (HENRI and LALOU), A., i, 643; ii, 678.
Salicylaldehyde, interpretation of the action of ferric chloride on (DESMOULIÈRES), A., i, 93.
 conditions of the oxidation of, by organs and extracts of organs (ABELLOUS and ALOY), A., ii, 560.
 compounds of, with aniline sulphite (SPERONI), A., i, 247.
 compound of, with molybdic acid (ROSENHEIM and BERTHEIM), A., ii, 374.
Salicylaldehyde-p-bromophenylhydrazone and its oxidation (BILTZ and SIEDEN), A., i, 120.
Salicylaldehyde-p-nitrophenylhydrazone (BILTZ and SIEDEN), A., i, 121.
Salicylaldehyde-p-phenylmethylhydrazone and its oxidation (BILTZ and SIEDEN), A., i, 121.
Salicylaldehydophenylhydrazone, decomposition of (ANSELMINO), A., i, 367.
Salicyleinonidine (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 513.
Salicylic acid, occurrence of, in fruits (TRAPHAGEN and BURKE), A., ii, 388.
 occurrence of, in strawberries and raspberries (WINDISCH), A., ii, 567.
 occurrence of, in wines, grapes, and other fruits (MASTBAUM), A., ii, 703.

Salicylic acid, preparation of (CHEMISCHE FABRIK AUF AKTIEN), A., i, 343.
 and its methyl ester, interpretation of the action of ferric chloride on (DESMOULIÈRES), A., i, 93.
 decomposition of, by mould (LOTT), A., ii, 318.
 organo-mercury compounds of (BURONI), A., i, 392.
 detection of, in foods by the ferric chloride test (TAFFE), A., ii, 394.
 estimation of (HARVEY), A., ii, 248.
Salicylic acid, acid salts of, and the effect of water and alcohol on them (FARMER), T., 1444; P., 274.
 mercury salt (BURONI), A., i, 256.
 basic mercuric salt (LAJOUX), A., i, 485.
Salicylic acid, alkylxymethyl esters (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 485.
 methoxymethyl ester. See Mesotan.
 phenyl ester (*salol*), transformations of (FOSSE), A., i, 485.
 diastatic hydrolysis of (POZZI-ESCOT), A., i, 590.
isoSalicylic acid and the action of hydrogen on, in alkaline solution (BRUNNER), A., i, 171.
Salicyl- α -osazone, acetylation of (BILTZ and WEISS), A., i, 59.
Salicyl-quinidine and -quinine (VEREINIGTE CHININFABRIKEN ZIMMER & CO.), A., i, 50.
Salicylquinine (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 513.
Saligenin, condensation of, with aromatic basis (PAAL), A., i, 340.
Salol. See Salicylic acid, phenyl ester.
Salt. See Sodium chloride.
Salt deposits, arsenic in (GAUTIER), A., ii, 593, 645.
 of Kef-el-Melah in the Djebel Amour (LE COMTE), A., ii, 159.
Salts, migration experiments to determine the constitution of (KREIMANN), A., ii, 54; (BREDIG), A., ii, 263.
 dissolved in liquefied gases, conductivity of (STEELE and MCINTOSH), P., 220.
 See also Metallic salts.
Samarskite, a variety of, from the Caucasus in Batoum (TSCHERNIK), A., ii, 158.
Sambucus racemosa, fatty oil of (ZELLNER), A., ii, 234.
Santanol, behaviour of, in the organism (HILDERBRANDT), A., ii, 166.
Santolic acid and its esters and salts, and the action of hydroxylamine on it (FRANCESCONI and FERRULLI), A., i, 830.

Santonic acid and its oxime, and **Santonin**, action of nitrous acid on (FRANCESCO and FERRULLI), A., i, 829.
Santonin derivatives, interaction of, with diazonium salts (WEDEKIND and SCHMIDT), A., i, 542; (FRANCESCO and FERRULLI), A., i, 830.
 fusion of, with potassium hydroxide (BERTOLO), A., i, 261.
Desmotroposantoinazosulphanilic acid, and its aniline and *p*-toluidine derivatives (SCHMIDT and WEDEKIND), A., i, 777.
Saponification. See Hydrolysis under Affinity.
Saponin froth (v. ZAWIDZKI), A., ii, 281.
Sarcosine of man, characterisation of the (v. ZUMBUSCH), A., i, 217.
 amount of iron in the (ZDAREK and v. ZEYNEK), A., i, 218.
Sarracenia purpurea (GIES), A., ii, 569.
Saxatic acid (HESSE), A., i, 704.
Scatoleaminoacetic acid. See Tryptophan.
Scatosine (BAUM; SWAIN), A., ii, 225.
Scheelite from Sardinia (TRAVERSO), A., ii, 435.
Scopolamine (SCHMIDT), A., i, 51.
Scopoline and its derivatives (SCHMIDT), A., i, 51.
Sea water. See under Water.
Secretin and lymph-flow (MENDEL and TREACHER), A., ii, 561.
 action of (ENRIQUEZ and HALLION), A., ii, 316; (FLEIG), A., ii, 385.
 pancreatic (VERNON), A., ii, 85; (BAYLISS and STARLING), A., ii, 316.
Seedlings, composition and metabolism of (SCHULZE and CASTORO), A., ii, 566.
 formation of chlorophyll in, in rarefied air and rarefied oxygen (FRIEDEL), A., ii, 171.
 breaking down of tyrosine in (BERTEL), A., ii, 321.
Selenium, action of radioactive substances on the electrical conductivity of (VAN AUBEL), A., ii, 403.
 heated, odour of (RATHKE), A., ii, 287.
 action of, on gold and silver salts (HALL and LENHEER), A., ii, 154.
 action of, on organo-magnesium compounds (WUYTS and COSYNS), A., i, 686.
Selenyl chloride, action of, on mannitol (CHABRIÉ and BOUCHONNE!), A., i, 307.
Selenic acid, action of acetic chloride on (LAMB), A., i, 732.

Selenium:—

Selenic acid, action of phenylhydrazine on (GUTBIER), A., i, 120.
Selenates, compounds of, with iodates, phosphates and arsenates (WEINLAND and BARTLINGCK), A., ii, 420.
Selenium sulphide (RATHKE), A., ii, 287.
disulphide, colloidal solution of (GUTBIER), A., ii, 71.
Selenomanganic compounds (FRERICHS), A., i, 609.
Selenoacridone (EDINGER and RITSEMA), A., i, 720.
Selenodilactylic acids and their amides and salts (Coos), A., i, 66.
Seleno- α -naphthol and -phenol (TABOURY), A., i, 748.
Selenium and arsenic, detection of, in sulphur (STEEL), A., ii, 41.
 estimation of, gravimetrically (GUTBIER and ROHN), A., ii, 390.
 estimation of, in coke (SMITH), A., ii, 327.
 estimation of, in organic compounds (LYONS and SHINN), A., ii, 326; (FRERICHS), A., ii, 327.
 separation of, quantitatively, from tellurium (PELLINI), A., ii, 752.
Selivanoff test, improved (ROSIN), A., ii, 616.
Semicarbaziglyoximedimethylmalonylic acid, methyl ester (PERKIN), T., 1228.
Semicarbazinoisobutyric acid and its esters (BAILEY), A., i, 130.
Semicarbazinopropionic acid, esters, and their oxidation (BAILEY), A., i, 130.
Semicarbazone, $C_5H_{11}O_3N_3$, from the oxidation of methyl semicarbazinopropionate (BAILEY), A., i, 130.
Seminase, action of, on albumen (HÉRISSEY), A., ii, 170.
Senaita from Brazil (HUSSAK and REITINGER), A., ii, 553.
Sera, snake, constitution of (FLEXNER and NOGUCHI), A., ii, 500.
Serendibite from Ceylon (PRIOR and COÓMARA-SWÁMY), A., ii, 380.
Serine, synthesis of (FISCHER and LEUCHS), A., i, 12; (ERLENMEYER), A., i, 29.
isoSerine (EGOROFF), A., i, 790.
 new homologue of (NEUBERG and WOLFF), A., i, 12.
Serpentine from the Southern Urals (LOEWINSON-LESSING), A., ii, 28.
Serum and blood, difference of potential between (STEWART), A., ii, 559.
 from typhoid convalescents (EVANS), A., ii, 674.

Serum, saponifying action of, on esters (DOYON and MOREL), A., ii, 560.
 behaviour of, towards tryptic digestion (OPPENHEIMER and ARON), A., ii, 738.

Serum-albumin, crystallised, from horses' blood, hydrolysis of (ABDERHALDEN), A., i, 588.

Serum-globulins (PORGES and SPIRO), A., i, 214; (FREUND and JOACHIM), A., ii, 87.
 carbohydrates from (LANGSTEIN), A., i, 374, 734.

Sesamé oil, the iodine number of (WIJS), A., ii, 341.
 detection of, in earthnut oil, etc. (SCHNELL), A., ii, 191.

Shale oil, Scottish, bases in (GARRETT and SMYTHE), T., 763; P., 164.

Sheep, straw as food for (LEHMANN), A., ii, 96.

Sieve numbers, proposals for a rational series of (MAYER), A., ii, 98.

Silica. See Silicon dioxide.

Silicon, forms of, in iron (NASKE), A., ii, 549.
 copper, and manganese, equilibrium which exists between (LEBEAU), A., ii, 298.

Silicon carbide. See Carborundum.
 tetrachloride, compound of, with ethyl acetoacetate (ROSENHEIM, LOEWENSTAMM, and SINGER), A., i, 603.
 hydride, Si_2H_6 , liquid, new preparation of (MOISSAN), A., ii, 208.

Silicides. See under the separate Metals.

Silicon dioxide (silica), amorphous, and quartz, separation of (SJOLLEMA), A., ii, 241.
 estimation of, colorimetrically, in drainage waters (VEITCH), A., ii, 329.

Silicic acid (JORDIS), A., ii, 364; (JORDIS and KANTER), A., ii, 475, 542, 595.

Silicates, constitution of certain (SIMMONDS), T., 1449; P., 218.
 action of ammonium chloride on (CLARKE and STEIGER), A., ii, 380.
 simplification of the analysis of, by the use of formic acid (LECLÈRE), A., ii, 612.

Silicon organic compounds (DILTHEY), A., i, 405, 591; (ROSENHEIM, LOEWENSTAMM, and SINGER), A., i, 603.

Silicon-amide and -imide (VIGOUROUX and HUGOT), A., ii, 541.

Silicophenylamide, interactions of, with thiocarbimides (REYNOLDS), T., 252; P., 6.

Silk-fibroin, hydrolysis of (FISCHER), A., i, 779.

Silver, pebbles of copper and, from Mexico (FITZPATRICK), A., ii, 300.
 so-called colloidal (HANRIOT), A., ii, 368, 543, 597; (CHASSEVANT and POSTERNAK), A., ii, 478.
 colloidal solutions of, preparation of (KÜSPERT), A., ii, 76; (GUTBIER), ii, 82; (HENRICH), A., ii, 299; (GARBOWSKI), A., ii, 432.
 application of the phase rule to the melting point of (RICHARDS), A., ii, 266.
 solutions, ammoniacal, reduction of, by organic substances (MORGAN and MICKLETHWAIT), A., ii, 189.
 precipitation of mixed bromide and thiocyanate solutions by (KÜSTER and THIEL), A., ii, 136, 510.
 as a reducing agent (HENDRIXSON), A., ii, 596.
 ions, complex (v. EULER), A., ii, 544, 717.

Argentammonium bases (v. EULER), A., ii, 544; (BONSDORFF), A., ii, 598.
 compounds in solution (WHITNEY and MELCHER), A., ii, 290.

Silver chloronitroiridium compound (MIOLATI and GIALDINI), A., ii, 25.

Silver salts, action of selenium and tellurium on (HALL and LENHER), A., ii, 154.

Silver chloride, solubility of, in presence of mercuric salts (FINZI), A., ii, 210.
 chloride and oxide, solubility of (NOYES and KOHR), A., ii, 201.
 estimation and separation of, from silver cyanide (PLIMMER), P., 285.
 dichromate (MAYER), A., ii, 550.
 iodide, mixed crystals of mercuric iodide and (STEGER), A., ii, 482.
 and iodide-nitrate (FANTO), A., ii, 648.
 nitrate, equilibrium between succinonitrile, water, and (MIDDELBERG), A., ii, 414.
 hyponitrite (WIELAND), A., i, 691; (DIVERS), A., ii, 725.

sulphide and antimony sulphide, fusibility of mixtures of (PÉLALBON), A., ii, 544.
 action of hydrogen on, in presence of antimony trisulphide and of arsenic trisulphide (PÉLALBON), A., ii, 290.

Silver cyanate, action of, on acid chlorides (BILLETER), A., i, 484, 800, 821.
 cyanide, estimation and separation of, from silver chloride (PLIMMER), P., 285.
 and potassium thiocyanates and their solubility (FOOTE), A., i, 797.
Silver, estimation of, in platinum alloys (NEVEU), A., ii, 514.
 electrolytic estimation of small quantities of, in presence of lead (ARTH and NICOLAS), A., ii, 613.
Silver-hydrocyanic acid (v. EULER), A., ii, 544.
Silvering of glass, influence of copper in the (VIGNON), A., ii, 543.
Simonyite, identity of, with blodite (JAEGER) A., ii, 489.
 sodium potassium (VAN'T HOFF and BARSCHALL), A., ii, 434.
Sinapic acid, synthesis of (GRAEDE and MARTZ), A., i, 492.
Sitosterol (GILL and TUFTS), A., ii, 517.
Skeleton, glycogen in the (HÄNDEL), A., ii, 90.
Slags, basic, analysis of (SJOLLEMA), A., ii, 236; (WEIBULL), A., ii, 575.
 estimation of free lime in (BISCHOFF), A., ii, 242.
 estimation of citrate-soluble phosphoric acid in (NAUMANN), A., ii, 330.
 the citrate method for the estimation of phosphoric acid in (WOY), A., ii, 390; (v. LORENZ), A., ii, 511.
 estimation of citrate-soluble phosphoric acid in, by the molybdate method (NEUBAUER), A., ii, 102.
Soap, rapid analysis of (TELLE), A., ii, 115.
Soap-lyes, estimation of glycerol in (FANTO), A., ii, 515.
Sodium, fluorescence and absorption spectra of the vapour of (WOOD and MOORE), A., ii, 621.
 electrolytic conductivity of solutions of, in mixtures of ethyl or methyl alcohol and water (TIJMSTRA), A., ii, 628.
 new method of determining the density of the vapour of (JEWETT), A., ii, 61.
Sodium alloys, formation and significance of, in cathodic polarisation (SACK), A., ii, 349.
 with mercury, electrolytic preparation of (SHEPHERD), A., ii, 210.
Sodium salts, heat of solution of (VARALI-THEVENET), A., ii, 131.
Sodium orthoarsenite, action of, on solutions of metallic salts (REICHARD), A., ii, 140.
tetraborate, solubility curve of (HORN and VAN WAGENER), A., ii, 725.
 carbonate, decomposition of dissolved, into sodium hydroxide and carbon dioxide (KUSTER and GRÜTERS), A., ii, 289.
sesquicarbonate, double salt of, with magnesium carbonate (v. KNORR), A., ii, 370.
 carbonates, equilibrium between carbon dioxide, water, and (McCoy), A., ii, 413.
 chlorate and perchlorate, decomposition of (SCOBAL), A., ii, 645.
 chloride (table salt), arsenic in (GAUTIER), A., ii, 593, 645.
 metabolic value of (BELLI), A., ii, 666.
 importance of, in heart activity (LINGLE), A., ii, 30.
 elimination of, in normal faeces and in diarrhoea (JAVAL), A., ii, 670.
 manuring of barley with (DOLL), A., ii, 174.
hypochlorite (SUNDER), A., ii, 144.
 fluoride, action of, on plant growth (Asō), A., ii, 173.
hydride (HOLT), P., 187.
hydroxide, fused, electrolysis of (LE BLANC and BRODE), A., ii, 18, 75, 144; (LORENZ), A., ii, 144.
 containing lead, electrolysis of (ELBS and FORSELL), A., ii, 5.
 anodic, decomposition points of aqueous solutions of (PLZÁK), A., ii, 52.
 dependence of the reactive power of, on the concentration (VÄUBEL), A., ii, 425.
 nitrate, capillary rise of (BOTTOMLEY), T., 1424; P., 272.
 nitrite, analysis of (WEGNER), A., ii, 453.
 iridium nitrite (LEIDIÉ), A., ii, 24.
 oxide, preparation of (BADISCHE ANILIN- & SODA-FABRIK), A., ii, 646.
 peroxide, iodometry of (RUPP), A., ii, 42.
 silicate, melting point of, and of its mixture with calcium silicate (KULTASCHEFF), A., ii, 545.
 sulphate, transition temperature of (RICHARDS and WELLS), A., ii, 411.
 solution, properties of (MARIE and MARQUIS), A., ii, 358.

Sodium sulphate, behaviour of, in aqueous solution (HANTZSCH), A., ii, 145.
 compound of, with hydrogen peroxide (WILLSTÄTTER), A., ii, 537.
 alum, preparation of crystalline (DUMONT), A., ii, 547.
 copper sulphate, preparation and solubility of (KOPPEL), A., ii, 78.
 thiosulphate, action of hydrogen peroxide on (WILLSTÄTTER), A., ii, 543.
 sulphide, preservation of standard solutions of (PROTHIÈRE and REVAUD), A., ii, 182.
 volumetric estimation of (BATTAGAY), A., ii, 756.
 hyposulphite, synthesis of (MOISAN), A., ii, 75.
 action of, on metallic salts (BRUNCK), A., ii, 481.
 trithionate (WILLSTÄTTER), A., ii, 543.
 tungstate, interaction of hydrochloric acid and (PAPPADÀ), A., ii, 23.

Sodium cyanide, double salts of, with mercuric and with copper cyanides (GROSSMANN), A., ii, 476.
 cadmium and zinc cobalticyanides (FISCHER and CUNTZE), A., i, 77.
 zinc cyanides (SHARWOOD), A., i, 684.
 nitroprusside, toxicity of (FONZES-DIACON and CARQUET), A., ii, 605.
 phenyl (ACREE), A., i, 724.

Sodium, estimation of, in urine (HURTELEY and ORTON), A., ii, 695.

Soils, importance of chemical investigation of (WOHLTMANN), A., ii, 97.
 pot and field experiments on (HARTWELL), A., ii, 97.
 estimation of the acidity and lime requirements of (VEITCH), A., ii, 400.
 dependence of the amount of nitrogen as nitrates on the state of cultivation of (TRETJAKOFF), A., ii, 749.
 nitrogenous compounds in (ANDRÉ), A., ii, 235, 508.
 action of crude phosphates on (TACKE), A., ii, 570.
 fixation of phosphoric acid in (CRAWLEY), A., ii, 325.
 the rôle of plants in dissolving the undissolved nutritive substances of (Kossowitsch), A., ii, 234.
 cultivated, production and distribution of nitrates in (KING and WHITSON), A., ii, 570.
 cultivated Argentina, presence of lime as dolomite in (PHIPSON), A., ii, 38.

Soils, Cuban (FREAR and BEISTLE), A., ii, 236.
 Hawaiian, fixation of ammonia and potash by (CRAWLEY and DUNCAN), A., ii, 235.
 Java (KOBUS and MARK), A., ii, 236.
 marsh, vegetation experiments with (TACKE), A., ii, 176.
 vegetable (SCHLÖSING), A., ii, 97.
 mechanical analysis of (SCHLÖSING), A., ii, 681.
 estimation of total alkalis in (PETTIT), A., ii, 512.
 estimation of total phosphoric acid and potassium in (WILLIAMS), A., ii, 511; (COUSINS and HAMMOND), A., ii, 693.

Solanin (HILGER and MERKENS), A., i, 846.

Solids and liquids, thermal properties of (LUSSANA), A., ii, 713.

Solubility. See under Solution.

Solution, modern theories of (TRAUBE), A., ii, 63.
 basis of the theory of (CANTOR), A., ii, 201.
 numerical examples of the new theory of (GOEBEL), A., ii, 63.
 and adhesion, the phenomena of (PATTEN), A., ii, 272.
 velocity of. See under Affinity.

Solidity, method of calculating (FRINDLAY), A., ii, 65.
 change of, with temperature and heat of solution of dissociated substances, thermodynamical relation between the (NOYES and SAMMET), A., ii, 468.
 freezing points, and boiling points, relation between (WILDERMAN), A., ii, 267.
 influence of inorganic salts on (BILTZ), A., ii, 358.
 in liquid hydrogen cyanide (KAHLENBERG and SCHLUNDT), A., ii, 57.
 of salts of optically active monobasic acids (POMERANZ), A., ii, 65.
 of some carbon compounds (SPEYERS), A., ii, 64.
 of dynamic isomerides (LOWRY), P., 156.
 of homogeneous mixtures (THIEL), A., ii, 531.
 of barium acetate (WALKER and FYFFE), T., 173.
 of sodium acetate in alcohol and water (SCHIAVON), A., i, 396.
 of aluminium in nitric acid (WOY), A., ii, 483.
 of the hydroxides of aluminium, beryllium, and indium in ammonia and amines (RENZ), A., ii, 729.

Solubility of ammonia in water, lowering of the, by the addition of carbamide (GOLDSCHMIDT), A., ii, 638.
 of ammonium nitrate in water between 12° and 40° (MULLER and KAUFMANN), A., ii, 290.
 of boric acid in acids (HERZ), A., ii, 288.
 of boric acid in water, influence of foreign substances on the (BOGDAN), A., ii, 532.
 of bromine, hydrogen sulphide, and iodine in water, influence of salts on the (MC LAUCHLAN), A., ii, 716.
 of caesium mercuric double chlorides (FOOTE), A., ii, 728.
 of calcium hydroxide in solutions of alkali hydroxides (D' ANSELME), A., ii, 726.
 of calcium sulphate in solutions of sodium chloride (CLOEZ), A., ii, 291; (D' ANSELME), A., ii, 478.
 of gypsum in presence of metallic chlorides (ORLOFF), A., ii, 211.
 of copper sodium sulphate (KOPPEL), A., ii, 78.
 of normal and acid alkali formates (GROSCHUFF), A., i, 600.
 of lead bromide, chloride, and iodide in water (LICHTY), A., ii, 480.
 of lithium nitrate and its hydrates (DONNAN and BURT), T., 335; P., 37.
 of magnesium oxide and zinc oxide in water (DUPRÉ and BIALAS), A., ii, 293.
 of red and yellow mercuric oxide (SCHICK), A., ii, 147.
 of ozone (INGLIS), T., 1012; P., 197.
 of phenylthiocarbamide, influence of inorganic salts on the (BILTZ), A., ii, 358.
 of phenylthiocarbamide in water, influence of foreign substances on the (BOGDAN), A., ii, 532.
 of phosphorus (STICH), A., ii, 540.
 of picric acid in ether (BOUGAULT), A., i, 755.
 of platinum in potassium cyanide (GLASER), A., ii, 242.
 of Prussian blue (WYROUROFF), A., i, 18.
 of silver chloride in presence of mercuric salts (FINZI), A., ii, 210.
 of thiocyanates of silver and potassium (FOOTE), A., i, 797.
 of trioxymethylene in sodium sulphite solutions (A. and L. LUMIÈRE and SEYEWETZ), A., i, 150.
Solubility curves, theory of (OSTWALD), A., ii, 280.

Solubility curves, discoverer of discontinuities in (MEYERHOFFER), A., ii, 280.
 of the hydrates of nickel sulphate (STEELE and JOHNSON), P., 275.
 of sodium tetraborate (HORN and VAN WAGENER), A., ii, 725.
 of some substances in sulphur dioxide near its critical point (CENTNERSZWER and TETELOW), A., ii, 716.

Solubility equilibrium between silver chloride, silver oxide, and solutions of potassium chloride and hydroxide (NOYES and KOHR), A., ii, 201.

Solutions, conductivity and internal friction of (RUDORF), A., ii, 403.
 conductivity of, at low temperatures (KUNZ), A., ii, 54.
 conductivity of, at the freezing point of water (WHETHAM), A., ii, 405.
 conductivity of, in amyamine (KAHLENBERG and RUHOFF), A., ii, 464.
 magnetisation of, with change of temperature (PIAGGESI), A., ii, 197.
 capillarity of (MATHIEU), A., ii, 13.
 aqueous, electrolysis of (FRENZEL), A., ii, 528.
 estimation of, with the Zeiss immersion refractometer (MATTHEIS and WAGNER), A., ii, 610.
 dilute, freezing points of (RICHARDS), A., ii, 354, 713.
 salt, variation of the index of refraction of, with the concentration (WALTER), A., ii, 705.
 behaviour of diaphragms in the electrolysis of (HITTORF), A., ii, 406.
 solid (BRUNI, MASCARELLI, and PADOA), A., ii, 63.
 and isomorphism (PADOA), A., ii, 715.
 dissociation in, and crystallisation from, a (DE BRUYN and JUNGIUS), A., ii, 531.
 supersaturated (JAFFÍ), A., ii, 469.

Solvent, influence of the, on the transport numbers (CARRARA), A., ii, 708.
 influence of the, in electrolytic conduction (PATTEN), A., ii, 57.
 mechanical friction of the, and resistance of the ions (KOHLRAUSCH), A., ii, 403.

Solvents, relations between the nature and properties of, and their ionising capacity (COFFETTI), A., ii, 404.
 relation between constitution and cryoscopic behaviour of (AUWERS, MANN, and GIERIG), A., ii, 268.
 cryoscopic, relation between the properties of different substances as, and their crystallisation constants (BRUNI and PADOA), A., ii, 715.

Solvents. See also Cryoscopy.

Somnoform, physiological action of (COLE), A., ii, 502.

Sorbic acid (hexenoic acid) and its homologues, synthesis of (JAWORSKY and REFORMATSKY), A., i, 4; (JAWORSKY), A., i, 728, 729, 730.

Sorbic acid (hexenoic acid), methyl ester, and its rotation (RUPE and ZELTNER), A., i, 566.

Sorghums, hydrocyanic acid in (BRUNNICH), T., 788; P., 148; (SLADE), A., ii, 233.

Spacial retardation (SKRAUP), A., i, 715.

Sparteine (MOUREU and VALEUR), A., i, 717.

Specific gravity. See Density.

heat. See Thermochemistry.

rotation. See Photochemistry.

volume. See Volume, specific.

Spectroscope and Spectrum. See Photochemistry.

Speculite from Western Australia (LIVEING), A., ii, 654.

Spermin, influence of, in the organism (DE POEHL), A., ii, 164.

Sperrylite in the nickel-copper ores from Sudbury (DICKSON), A., ii, 302.

Spilanthen and its dibromide and **Spilanthol** from Para cress (GERBER), A., ii, 609.

Spilanthes oleracea. See Cress, Para.

Spirits of wine, furfuraldehyde and some aromatic aldehydes as a test for fusel oil or isoamyl alcohol in (KOMAROWSKY), A., ii, 700.

Spleen, haemolysis in the (NOEL PATON and GOODALL), A., ii, 498.

destruction of blood corpuscles in the (BAIN), A., ii, 493.

leucæmic, autolysis of (SCHUMM), A., ii, 439.

Splenectomy, leucocytic changes following, combined with intravenous injections of sodium cinnamate (SHAW), A., ii, 501.

Spodumene from Western Australia (SIMPSON), A., ii, 381.

Sponges, manganese and iron in (COTTE), A., ii, 311.

tyrosinase in (COTTE), A., ii, 309.

Sputum, chemistry of (WANNER), A., ii, 500.

Stachyose (TANRET), A., i, 606.

Stannimethane. See under Tin.

Stannous compounds. See under Tin.

Staphylococcus pyogenes aureus, resistance of, to mercury perchloride (ANDREWES), A., ii, 386.

Staphyloyisin, action of, in the organism (SCHUR), A., ii, 92.

Starch, constitution of (SYNIEWSKI), A., i, 69.

hydrolysis of, by oxalic acid (DIERSSEN), A., i, 321.

action of formaldehyde on (SYNIEWSKI), A., i, 68.

in evergreen leaves, and its relation to carbon assimilation in winter (MIYAKE), A., ii, 96.

estimation of, in presence of pentosans (WEISER and ZAITSCHEK), A., ii, 225, 515.

Starch, nitro-, molecular weight of (SAPOSCHNIKOFF), A., i, 402.

Starch iodide (ANDREWS and GOETTSCH), A., i, 10.

relation of hydriodic acid and of its salts to (HALE), A., i, 151.

Starch paste, transformation of (MAQUENNE), A., i, 679.

Steam boiler, behaviour of magnesium chloride in a (FELD), A., ii, 77.

Stearic acid, estimation of (KREIS and HAFNER), A., ii, 339.

Stearic acid, lead salt (*lead tetrastearate*) (COLSON), A., i, 601.

isoStearic acid and its ethyl ester, salts, and chloride (BÖHME), A., i, 317.

Stearic acids, hydroxy-, structure of (SHUKOFF and SCHESTAKOFF), A., i, 397.

Stearins, synthesis of (GUTH), A., i, 225.

Stearylpalmitins, α - and β - (GUTH), A., i, 226.

Steel. See under Iron.

Steels, cementation of (GUILLET), A., ii, 298, 483.

Stereochemistry of alicyclic compounds (ASCHAN), A., ii, 2.

of dicyclic systems (JACOBSEN), A., ii, 68.

of nitrogen (REYCHLER), A., i, 23.

Stereoisomerides, number of (SKRAUP), A., ii, 67, 202; (JACOBSEN), A., ii, 68.

behaviour of, in the organism (NEUBERG and MAYER), A., ii, 496.

Stereometer, Say's, modifications of (MAMELI and SANNA), A., ii, 199.

Sterigmatocystis nigra, assimilation of (COUPIN), A., ii, 446.

α -**Stilbazole** (*styrylpyridine*), base, $C_{29}H_{17}N$, obtained in the preparation of (LADENBURG), A., i, 275.

derivatives of (LADENBURG and KROENER), A., i, 275.

Stilbene (*s-diphenylethylene*) from phenylnitroacetonitrile and from phenylnitromethane (WISLICENUS and ENDRES), A., i, 472.

derivatives, electrolytic reduction of (ELBS and KREMAN), A., i, 584.

Stilbene, *di-p*-amino-, action of chlorine on (ZINCKE and FRIES), A., i, 179.
tetrabromodi-p-hydroxy-, dibromide of, and its diacetate (ZINCKE and FRIES), A., i, 178.
o-chloro-, and its dibromide (KLAGES and TETZNER), A., i, 101.
tetrachlorodi-p-hydroxy-, and its dibromide and dichloride, and their diacetates (ZINCKE and FRIES), A., i, 180.
hexachlorodi-p-hydroxy-, and its diacetate (ZINCKE and FRIES), A., i, 182.
di-p-hydroxy-, and its bromo-derivatives (ZINCKE and FRIES), A., i, 178.

Stilbenedisulphonic acid, nitroamino-, and its salts (WAHL), A., i, 475.

Stilbenequinone, *tetrabromo*-, and its compounds with alkali hydroxides (ZINCKE and FRIES), A., i, 178.
tetrachloro- and imino- (ZINCKE and FRIES), A., i, 180.

Stilbene-mono- and *-di-sulphonic acids*, 2:4-dinitro-, and their salts, and nitroamino- and 2:4-diamino- (ESCALES), A., i, 81.

Stillingia sebifera seeds, fat of (KLI-MONT), A., i, 731.

Stirring and cooling apparatus (PLANCHER), A., ii, 722.

Stomach, digestion and absorption in the (ZUNZ), A., ii, 159; (REACH), A., ii, 664.
 protein digestion in the (GLAESSNER), A., ii, 85.
 estimation of the ferment-secretions in the (VOLHARD and STADE), A., ii, 120.
 See also Digestion.

Stomach contents, quantitative estimation of phosphates in (CLOWES), A., ii, 693.

Stone implements and their rough material from Swiss lake dwellings (BODMER-BEDER), A., ii, 223.

Strain, effects of, on the crystalline structure of lead (HUMFREY), A., ii, 137.

Straw as food for cattle and sheep (LEHMANN), A., ii, 96.

Strawberries, natural occurrence of salicylic acid in (WINDISCH), A., ii, 567.

Strepsilin (ZOPF), A., i, 763.

Strontium, electrolytic preparation of (BORCHERS and STOCKEM), A., ii, 19.

Strontium ferrate (EIDMANN and MOESER), A., ii, 546.

peroxide, iodometry of (RUPP), A., ii, 42.

Strontium silicates (JORDIS and KANTER), A., ii, 476, 542, 595.
 hyposulphite, synthesis of (MOISSAN), A., ii, 76.

Strontium, detection of, in presence of calcium by means of potassium chromate and ammonia (REICHARD), A., ii, 757.

barium, and calcium, simultaneous estimation and separation of (ROBIN), A., ii, 613.

Strophanthin from *Strophanthus hispidus* (KARSTEN), A., ii, 172.

Strophanthus hispidus, occurrence of strophanthin, choline, and trigonelline in (KARSTEN), A., ii, 172.

Struvite and newberryite, simultaneous production of (DE SCHULTEN), A., ii, 655.

arsenical, and rosslerite, simultaneous production of (DE SCHULTEN), A., ii, 655.

Strychnine nitroprusside (GRESHOFF), A., i, 848.
 tests for ; Wenzell's reagent (GUÉRIN), A., ii, 618.
 estimation of (SMITH), A., ii, 619.
 estimation of, in mixtures of strychnine and brucine (GORDIN), A., ii, 342.
 separation of, quantitatively, from quinine (HARRISON and GAIR), A., ii, 704.

Strychnine spasms, influence of artificial respiration on (GIES and MELTZER), A., ii, 317.

Stylophorum diphyllum, berberine from •(SCHLOFFERBECK), A., i, 193.

Stylocypite (STEVANOVIĆ), A., ii, 301.

Styrene (*cinnamene*), polymerisation of (KRONSTEIN), A., i, 80.
 nitrosites, so-called (WIELAND), A., i, 690.

Styrene (*cinnamene*), ω -bromo-, formation of (SUDBROUGH and THOMPSON), T., 683, 1155; P., 107.
 β -bromo-, action of sodium and magnesium on (TIFFENEAU), A., i, 241.
 bromonitro- and nitro-derivatives (THIELE and HAECKEL), A., i, 160.
 β -nitro-, reduction of (BOUVEAULT and WAHL), A., i, 616.
 preparation and reduction of homologues of (BOUVEAULT and WAHL), A., i, 616.

Styrenes, alkylated, production of (KLAGES and HAHN), A., i, 19.

Styrogallol and its potassium salt (PERKIN and WILSON), T., 139.

Styrylglyoxylic acid (*cinnamylformic acid*), formation and transformation of (ERLENMEYER), A., i, 698.

2-Styrylquinoline, bromo-, and *o*-nitro- and its salts (LOEW), A., i, 577.

4-Styrylquinoline, bromo-, and *o*- and *p*-nitro- and their salts (LOEW), A., i, 578.

Suberane (*cycloheptane*) in naphtha (MARKOWNIKOFF), A., i, 239.

preparation of (MARKOWNIKOFF), A., i, 239.

Suberene (MARKOWNIKOFF), A., i, 239.

Suberol, preparation of (MARKOWNIKOFF), A., i, 239.

Suberonitrile. See Hexane, *dicyano*.

Suberyl tert.-glycol and bromide, preparation of (MARKOWNIKOFF), A., i, 239.

Sublimation curves (BOUZAT), A., ii, 588.

Substance (m.p. 95°) from benzylphenoxyacetone and benzaldehyde (STOERMER and WEHLN), A., i, 41.

(m.p. 101°—102°), from di-*o*-acetylhydrazobenzene (CAMP), A., i, 33.

new, from the skins of olives (PEANO), A., ii, 173.

$C_3H_3O_3N_3$, from nitromalonic aldoxime nitrile (HILL and HALE), A., i, 402.

$C_3H_5O_2N$, from ethanolamine and cyanic acid (KNORR and RÖSSLER), A., i, 465.

$C_3H_5NS_2$, from ethanolamine and carbon disulphide (KNORR and RÖSSLER), A., i, 465.

$C_3H_5S_2Br_6Al$, from aluminium bromide, ethyl bromide, bromine, and carbon disulphide (PLOTNIKOFF), A., i, 137.

$C_4H_10O_3$, from the action of dilute sulphuric acid on $\alpha\beta$ -dimethylaminoanil of ethyl $\alpha\beta$ -diketobutyrate (SACHS, WOLFF, and KRAFT), A., i, 793.

$C_5H_9ON_3$, and $C_5H_9N_4$, from porphyrexide (PILOTY and VOGEL), A., i, 524.

$C_5H_9O_2NS_2$, from ammonium dithiocarbamate and ethyl chloroacetate (DELÉPINE), A., i, 236.

$C_5H_{10}ON_4$, from porphyrexide (PILOTY and VOGEL), A., i, 524.

$C_6H_{13}O_3N$, from the reduction of *d*-glucosamic acid (NEUBERG and WOLFF), A., i, 74.

$C_6H_{13}O_6N$, from chitosoxime and silver nitrite (NEUBERG and NEIMANN), A., i, 74.

$C_6H_{16}O_{14}N_6$, from glyoxylic acid and guanidine (KAESS and GRUSZKIEWICZ), A., i, 7.

$C_7H_6O_2N$, from chloroamino-*p*-toluquinol (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 760.

Substance, $C_7H_{11}ONS_2$, from the distillation of $C_9H_{17}O_2NS_2$ (v. BRAUN), A., i, 15.

$C_7H_{13}O_2N$, from ethanolamine and acetylacetone (KNORR and RÖSSLER), A., i, 465.

$C_8H_4O_4N_2$, from the action of nitrous fumes on cinnamaldehyde (WIELAND), A., i, 768.

$C_8H_6O_3$, $3H_2O$, from pannarol (HESSE), A., i, 705.

$C_8H_{12}O_4NBr_2$, from the action of potassium hydroxide on $C_8H_{13}O_4NB_2$ (DEMJANOFF), A., i, 394.

$C_8H_{13}O_4NBr_2$, from the action of hydrogen bromide on nitroisobutyl glycol (DEMJANOFF), A., i, 394.

$C_8H_{15}O_3N$, from ethanolamine and ethyl acetoacetate (KNORR and RÖSSLER), A., i, 465.

$C_8H_{15}NS_2$, from isoamylamine, ethylene dibromide, and carbon disulphide (v. BRAUN), A., i, 15.

$C_9H_{17}O_2NS_2$, from ethylamine, ethyl α -bromoisobutyrate, and carbon disulphide (v. BRAUN), A., i, 15.

$C_9H_{23}O_{10}N_9$, from glyoxylic acid and guanidine (KAESS and GRUSZKIEWICZ), A., i, 7.

$C_{10}H_6O_3$, from indandione and ethyl orthoformate (ERRERA), A., i, 266.

$C_{10}H_{10}O_5$, and its phenylhydrazone and semicarbazone, from $\beta\gamma\delta$ -triketopentane and piperidine (SACHS and WOLFF), A., i, 793.

$C_{10}H_{12}O_2$, from porinic acid (HESSE), A., i, 706.

$C_{10}H_{14}O_5$, from acetylacetone and $\beta\gamma\delta$ -triketopentane (SACHS and WOLFF), A., i, 792.

$C_{10}H_{16}O_5N$, from chitamic acid, acetic anhydride, and sodium acetate (NEUBERG and WOLFF), A., i, 74.

$C_{10}H_{16}O$, from *d*-pinene (DENARO and SCARLATA), A., i, 844.

$C_{10}H_{18}O_3$, from the hydrolysis of the potassium salt of santanol (HILDEBRANDT), A., ii, 166.

$C_{10}H_{20}O$, from methylisopropylpinacone (BEAUME), A., i, 727.

$C_{11}H_8O_4$, preparation of, and use of, for the identification of urea and primary amines (FENTON), T., 187.

$C_{11}H_{11}ONS_2$, from ammonium phenyl-dithiocarbamate and ethyl α -bromo-isobutyrate (v. BRAUN), A., i, 16.

$C_{11}H_{13}O_3Br_3$, from the action of bromine on matico-ether (FROMM and VAN EMSTER), A., i, 188.

Substance, $C_{11}H_{14}O_8N_2$, from the action of formaldehyde on the ammonium derivative of ethyl nitromalonate (ULPIANI and PANNAIN), A., i, 863.

$C_{11}H_{21}O_{16}N_9$, from glyoxylic acid and guanidine (KAESS and GRUSZKIEWICZ), A., i, 7.

$C_{12}H_{19}O_7$, from $\beta\gamma\delta$ -triketopentane and ethyl malonate (SACHS and WOLFF), A., i, 792.

$C_{12}H_{32}O_{2x}N_{12}$, from glyoxylic acid and guanidine (KAESS and GRUSZKIEWICZ), A., i, 7.

$C_{13}H_{12}O_5N_3$, from $\beta\gamma\delta$ -triketopentane and *p*-nitrobenzyl cyanide (SACHS and WOLFF), A., i, 793.

$C_{13}H_{15}NS_2$, from bromoacetophenone, isobutylamine, and carbon disulphide (v. BRAUN), A., i, 15.

$C_{14}H_4O_2Cl_4$ and $C_{14}H_5O_2Cl_{11}$, from the action of chlorine on di-*p*-amino-stilbene (ZINCKE and FRIES), A., i, 180.

$C_{14}H_5O_2Cl_{13}$ (two), from the action of chlorine on tetrachlorodi-*p*-hydroxytolane tetrachloride (ZINCKE and FRIES), A., i, 182.

$C_{14}H_6O_2Cl_{12}$, from the action of chlorine on tetrachlorodi-*p*-hydroxy-stilbene dichloride (ZINCKE and FRIES), A., i, 180.

$C_{14}H_{12}O_2$, and its diacetyl derivative, from hydrogen bromide and dihydroxystilbene (ZINCKE and FRIES), A., i, 178.

$C_{14}H_{23}O_5N$, from acetylacetoneamine and ethylidene malonate (KNOEVENAGEL, ERLER, and REINECKE), A., i, 652.

$C_{15}H_{15}ON_4$, from 4-keto-1:3-diphenyl-pyrazolone and hydrazine (SACHS and BECHERESCU), A., i, 530.

$C_{15}H_{12}O_2N_2$, from 4-keto-1:3-diphenyl-pyrazolone phenylhydrazine (SACHS and BECHERESCU), A., i, 530.

$C_{15}H_{14}N_3SCl$, from the action of acetic chloride on β -diphenylsemithiocarbazide (BUSCH and SCHNEIDER), A., i, 534.

$C_{15}H_{16}O_5$, from acetylacetone and $\beta\gamma\delta$ -triketo- δ -phenylbutane (SACHS and WOLFF), A., i, 792.

$C_{15}H_{17}O_3Cl$, formed as by-product in the aldoximation of anisole (SCHOLL and HILGERS), A., i, 348.

$C_{15}H_{24}O_9N_{12}$, from glyoxylic acid and guanidine (KAESS and GRUSZKIEWICZ), A., i, 7.

$C_{16}H_{14}O$, from the action of sulphuric acid on the substance from benzyl-phenoxyacetone and benzaldehyde (STOERMER and WEHLN), A., i, 41.

Substance, $C_{16}H_{14}ON_2S_2$, from dibenzylamine, bromoacetal, and carbon disulphide (v. BRAUN), A., i, 16.

$C_{16}H_{20}ON_2$, from $\Delta^{1:4}(8)$ -terpadienol and *o*-phenylenediamine (MANASSE and SAMUEL), A., i, 45.

$C_{17}H_{13}ON$, from dibenzylideneacetone dibromide (GROEBEL), A., i, 497.

$C_{17}H_{14}O_2$, and its acetate, from dibenzylideneacetone, sulphuric acid, and acetic anhydride (VORLÄNDER and SCHROEDTER), A., i, 496.

$C_{17}H_{15}O_4N$, from benzoylacetonamine and ethylidene malonate (KNOEVENAGEL, ERLER, and REINECKE), A., i, 652.

$C_{17}H_{20}O_3$, obtained as a by-product in the aldoximation of phenetole (SCHOLL and KREMPER), A., i, 348.

$C_{17}H_{21}ON$, and its picrate and bromo-derivative, from the action of ammonium formate on benzoylcamphor (FORSTER), T., 108.

$C_{17}H_{21}ON$, and its picrate, platinichloride, and benzoyl derivative, from the action of alcoholic ammonia on phenylchloromethylene-camphor (FORSTER), T., 106.

$C_{18}H_{13}O_2Br_3$, from tetrabromo-3:4-dimethoxyvinylphenanthrene (PSCHORR, JAECKEL, and FECHT), A., i, 195.

$C_{18}H_{24}O_4$, from acenaphthenequinone and ethyl acetoacetate (RECCHI), A., i, 261.

$C_{18}H_{32}O_2$, from lichesteric acid (BOHME), A., i, 316.

$C_{19}H_{16}O_2$ and $C_{19}H_{18}O_3$, from 1:4:5-trihydroxy-4:5-diphenyl-1:3-dimethylcyclopentanone-2 (JAPP and MICHE), T., 304.

$C_{20}H_{13}O_4N_5$, from the action of amyl nitrite on phenyl-*m*-nitrobenzylidenehydrazine (BAMBERGER and PEMSEL), A., i, 285.

$C_{20}H_{14}O_5$, and $C_{20}H_{16}O_6$, and their phenylhydrazone and semicarbazones, from $\beta\gamma\delta$ -triketo- δ -phenylbutane and piperidine (SACHS and WOLFF), A., i, 793.

$C_{20}H_{18}ON_2$, from the acid $C_{21}H_{18}O_3N_2$ (KNOEVENAGEL and HEEREN), A., i, 660.

$C_{20}H_{19}O_2N$, from the action of formaldehyde on β -naphtholbenzylamine (BETTI and FOÀ), A., i, 511.

$C_{20}H_{19}N$, and its salts, from 4-methyl-quinoline and cuminaldehyde (LOEW), A., i, 578.

$C_{20}H_{22}O_3$, from Chinese anise oil (TARDY), A., i, 46.

Substance, $C_{20}H_{30}O$, from camphenilan-aldehyde (FROMM, HILDEBRANDT, and CLEMENS), A., i, 429.

$C_{20}H_{32}O_2$, from the condensation of camphor and $C_{23}H_{25}O_2$ (MALMGREN), A., i, 103.

$C_{20}H_{34}O$, from the seeds of *Brucea sumatrana* (POWER and LEES), A., i, 772.

$C_{21}H_{16}ON_4$, from 4-keto-1:3-diphenyl-pyrazolone and *o*-phenylenediamine (SACHS and BECHERESCU), A., i, 529.

$C_{21}H_{18}OS$, from benzyl sulphoxide and benzaldehyde (FROMM and ACHERT), A., i, 341.

$C_{22}H_{21}O_5N_2Cl$, from isoquinoline and chloroacetic acid (IHLDER), A., i, 116.

$C_{23}H_{23}ON_5S$, from $C_{15}H_{14}N_3SCl$ (BUSCH and SCHNEIDER), A., i, 534

$C_{23}H_{23}O_3N$, from benzylidenebenzoyl-acetone and ethyl β -aminocrotonate (KNOEVENAGEL, ERLER, and REINECKE), A., i, 652.

$C_{23}H_{24}O_4N_2$, from phenylhydrazine and ethyl 3-phenyl-1-methylcyclohexene-5-one-2:4-dicarboxylate (KNOEVENAGEL and HEEREN), A., i, 660.

$C_{23}H_{28}O_2$, from α -bromocamphor, magnesium, and benzophenone (MALMGREN), A., i, 103.

$C_{23}H_{33}O_7N$, from delphocurarine (HEYL), A., i, 650.

$C_{24}H_{10}ON_2Br_2$, from 4-bromoacenaphthoquinone (GRAEBE and GUINSBOURG), A., i, 408.

$C_{24}H_{20}O_3$, and its isomeride, from phenoxyacetone, benzaldehyde, and anisaldehyde (STOERMER and WEHLN), A., i, 41.

$C_{24}H_{20}N_6$, from methylaniline- ω -sulphonic acid and methyl- ω -toluidine- ω -sulphonic acid (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 373.

$C_{24}H_{32}O_6$, from acenaphthenequinone and ethyl acetoacetate (RECCHI), A., i, 261.

$C_{26}H_{20}O_4N_6$ (three), from the action of amyl nitrite on phenyl-*m*-nitrobenzylidenehydrazine (BAMBERGER and PEMSEL), A., i, 285.

$C_{26}H_{20}O_4N_6$, from nitrosobenzaldehyde-*p*-nitrophenylhydrazone (BAMBERGER and PEMSEL), A., i, 285.

$C_{27}H_{23}O_2N$, from benzylidene and benzoylacetonamine (KNOEVENAGEL, ERLER, and REINECKE), A., i, 652.

$C_{28}H_{16}O_2N_2$, from indanthrene (KAUFLEER), A., i, 446.

Substance, $C_{29}H_{30}N_2$, from the action of aniline on phenylchloromethylene-camphor (FORSTER), T., 105.

$C_{31}H_{21}O_2N$, from β -naphthol, benzaldehyde, and ammonia (BETTI), A., i, 511.

$C_{31}H_{27}N$, and its nitroso-derivative, from alcoholic ammonia and dibenzylidene-cyclopentanone (MENTZEL), A., i, 497.

$C_{32}H_{21}O_4$, from α -bromodiphenacyl (PAAL and SCHULZE), A., i, 709.

$C_{33}H_{28}O_6N_3Cl$, from isoquinoline and chloroacetic acid (IHLDER), A., i, 116.

$C_{34}H_{28}O_2N_6$, from benzoylphenylmethylpyrazolone and hydrazine hydrate (MICHAELIS and BENDER), A., i, 289.

$C_{36}H_{30}O_2$, from benzylideneacetophenone and phenylmagnesium bromide (KOHLER), A., i, 483.

$C_{42}H_{38}O_2$, and its bromo-derivative, from diphenylstyrylcarbinol (KOHLER), A., i, 483.

Substitution, law of, in aromatic compounds (FLÜRSHEIM), A., i, 79; (KAUFFMANN), A., ii, 401.

influence of, on the stability of phenols towards carbon dioxide at the ordinary temperature (RAIKOW and MOMTSCHILOW), A., i, 162.

influence of the CH_3 group on, in the benzene nucleus (BLANKSMA), A., i, 164.

Succinianilide, tetrachloro- (VERDA), A., i, 21.

Succinic acid (*ethanedicarboxylic acid*), presence of, in meat extracts (KUTSCHER and STEUDEL), A., ii, 499; (SIEGFRIED; WOLFF), A., ii, 660.

action of, on *p*-anisidine (FICL), A., i, 162.

formation of hydrogen ions from the methylene group of (EHRENFIELD), A., i, 548.

interaction of, with *o*-, *m*-, and *p*-phenylenediamines (MEYER), A., i, 442.

tetradecylamide of (SHUKOFF and SCHESTAKOFF), A., i, 398.

estimation of, in wine (KUNZ), A., ii, 701.

Succinic acid (*ethanedicarboxylic acid*), cobalt and nickel salts, constitution of, in aqueous solution (TOWER), A., ii, 134.

rare earth salts (MEYER), A., i, 66, 147.

Succinic acid (*ethanedicarboxylic acid*), aryl esters (BISCHOFF and v. HEDENSTRÖM), A., i, 85, 86.

Succinic acid, ethyl ester, condensation of, with acetone (STOLLÉ), A., i, 317.
isoSuccinic acid. See Methylmalonic acid.
Succinic anhydride, interaction of, with *o*-, *m*-, and *p*-phenylenediamines (MEYER), A., i, 443.
Succinic chloride, action of aniline on (DUNLAP and CUMMER), A., i, 699.
Succinonitrile, equilibrium between silver nitrate, water, and (MIDDELBERG), A., ii, 414.
condensation of, with ethyl oxalate (MICHAEL), A., i, 736.
Succinylidiphenylhydrazide and its diacetyl derivative (BTLOW), A., i, 55.
Sucrose (*saccharose, cane sugar*), presence of, in almonds, and its rôle in the formation of the oil (VALLÉE), A., ii, 234.
in plants (BOURQUELOT), A., ii, 747.
dependence of the temperature coefficient of the specific rotation of, on the temperature of wave-length (SCHONROCK), A., ii, 764.
inversion of, by invertase (HENRI), A., i, 219, 304.
methylation of (PURDIE and IRVINE), T., 1036; P., 193.
Sugar of buffalo's milk (PORCHER), A., i, 735.
amount of, in cinnamon bark (V. CZADEK), A., ii, 568.
real, calculation of, in chocolate (LEYS), A., ii, 188.
inversion of, in plastered wines (MAGNANINI), A., ii, 231.
formation of, in the blood as it passes through the lung (LÉPINE and BOULUD), A., ii, 736.
in the blood after liver ablation (PAVY and SIAU), A., ii, 494.
formation of, in the perfused liver (KRAUS), A., ii, 740.
Sugar-cane, disappearance of reducing sugar in (WILEY), A., ii, 747.
Sugar residues, new nitrogenous constituents of (EHRLICH), A., i, 796.
Sugars, the alkylation of (PURDIE and IRVINE), T., 1021; P., 192; (PURDIE and BRIDGERT), T., 1037; P., 193.
general characters of the enzymes which effect the hydrolysis of (BOURQUELOT), A., i, 378, 452; (BOURQUELOT and HÉRISSEY), A., i, 551.
glycolysis of different (PORTIER), A., ii, 306.
of vegetable glucosides (VOTOČEK and VONDRAČEK), A., i, 570.
of muscle (OSBORNE and ZOBEL; CADÉAC and MAIGNON), A., ii, 310.

LXXXIV. ii.

Sugars and urea, antitoxic effects of (LESNÉ and RICHER), A., ii, 503.
analysis of, a source of error in the optical (WIECHMANN), A., ii, 699.
colorimetric detection of very small quantities of (VENTRE), A., ii, 47.
detection and separation of, by β -naphthylhydrazone (HILGER and ROTHENFUSSER), A., ii, 187.
See also Carbohydrates.
Sulphamide, preparation of (RUFF), A., ii, 723.
m-**Sulphaminebenzoic acid**, comparison of, made by different methods (FRAZER), A., i, 825.
Sulphazilates and **Metasulphazilates**. See Peroxylaminesulphonates and Hydroxylaminetrisulphonates.
Sulphides. See under Sulphur.
Sulphines, salts of, with mercurichlorides (STROMHOLM), A., i, 138.
Sulphite liquors, estimation of free and combined alkali in (SCHWARTZ), A., ii, 104.
o-**Sulphobenzoic acid**, isomeric chlorides of, and their reaction with amines and phenols (REMSEN), A., i, 822.
Sulphobenzoic acids, *m*- and *p*-, esters (WEGSCHEIDER and FURCHT), A., i, 342.
Sulphocampholenecarboxylic acid and its salts (HARVEY and LAPWORTH), T., 1102; P., 148.
Sulphocamphylic acid (PERKIN), T., 885.
Sulphocarboxylic acids, esterification of (WEGSCHEIDER and FURCHT), A., i, 342.
salts, so-called compounds of, with sulphuric esters (FRANCHIMONT and AITEMA), A., i, 484.
p-**Sulphocinnamic acid**, salts (MOORE), A., i, 698.
p-**Sulphodihydrocinnamic acid, dibromo-**, and its salts and amide (MOORE), A., i, 698.
o-**Sulphomercuribenzoic acid**, potassium salt (PESCI), A., i, 220.
Sulphonaphthoic acids, β -hydroxy-, L and S, constitution of (BUCHERER), A., i, 627.
Sulphonic acids, esterification of (WEGSCHEIDER and FURCHT), A., i, 342.
salts, addition of hydrogen fluoride to (WEINLAND and STILLE), A., i, 749.
β-**Sulphopropionic acid**, α -amino-. See Cysteic acid.
Sulphur, free, in petroleum from Beaumont (THIELE), A., ii, 83.
presence of, in the water of the Grotto at Luchon and in the vapours used for inhalation (MOISSAN), A., ii, 209.

sulphur, amorphous, formation of (SMITH), A., ii, 139; (SMITH and HOLMES), A., ii, 284.

and its relation to the freezing point of liquid sulphur (SMITH), A., ii, 139; (SMITH and HOLMES), A., ii, 284.

isotherm of the dissociation of, at 448° (PREUNER), A., ii, 644.

action of, on organomagnesium compounds (WUYTS and COSYNS), A., i, 686.

boiling point curves of chlorine and (ROOZEBOOM), A., ii, 634.

mixtures of iodine and (BOLOUCH), A., ii, 538.

sulphur compounds, density of, in relation to chemical constitution and composition (KANONNIKOFF), A., ii, 11.

with tellurium (GUTBIER and FLURY), A., ii, 71.

sulphur bromides (RUFF and WINTERFELD), A., ii, 590.

chlorides (RUFF and FISCHER), A., ii, 204.

Thionyl chloride, preparation of (CHEMISCHE FABRIK GRIESHEIM-ELEKTRON), A., ii, 420.

action of, on oximes (PAWLEWSKI), A., i, 405.

Sulphuryl chloride, action of aluminium chloride on (RUFF), A., ii, 149.

sulphur hydride. See Hydrogen sulphide.

Sulphides, phosphorescent, effect of pressure on (WAENTIG), A., ii, 625.

quantitative separation of haloids and (BILTZ), A., ii, 451.

thiocyanates, cyanates, and cyanides, estimation and separation of (MILBAUER), A., ii, 392.

sulphur dioxide, distribution of, between water and chloroform (McCRAE and WILSON), A., ii, 474.

action of, on plants (WIELER), A., ii, 324.

compounds of, with salts (WALDEN and CENTNERSWER), A., ii, 284.

sulphur trioxide, preparation of, by means of the contact action of iron oxide (LUNGE and POLLITT), A., ii, 70.

rate of formation of, in presence of platinum (BODLÄNDER and KÖPPEN), A., ii, 639.

Sulphur acids:

Sulphurous acid, study of the interaction of, with nitrous acid (CARPENTER and LINDER), A., ii, 238.

Sulphur acids:

Sulphurous acid, organically combined, in foods (KERP), A., ii, 326.

effect of, on plants and fishes (KONIG and HASENBAUMER), A., ii, 748.

iodometry of (RUPP), A., ii, 40.

detection and estimation of, in

wines (MAHIEU), A., ii, 99.

estimation of, by means of standard iodine solution (BERG), A., ii, 179.

Sulphuric acid, lead chamber process, theory of the (HAAGN), A., ii, 71.

examination of methods used in estimating the total acidity of gases escaping from the chamber process for the manufacture of (CARPENTER and LINDER), A., ii, 238.

estimation of the strength of (MARSHALL), A., ii, 237.

absorption spectrum of (HARTLEY), T., 237.

vapour pressures of solutions of (BURT), P., 224.

influence of impurities on the specific gravity of (MARSHALL), A., ii, 205.

action of, on platinum (CONROY), A., ii, 433.

esterification of (VILLIERS), A., i, 599.

esters (BUSHONG), A., i, 732.

compound of, with ferric sulphate (RECOURA), A., ii, 599.

displacement of the, of alkali hydrogen sulphates by water (COLSON), A., ii, 289.

as solvent for alloys of tin (NISSENSON and CROTGINO), A., ii, 108.

titration of, by benzidine hydrochloride (MULLER and DÜRKES), A., ii, 751.

estimation of combined, or uncombined, by means of benzidine (RASCHIG), A., ii, 572, 691; (MÜLLER), A., ii, 691.

new method for the estimation of (SILBERBERGER), A., ii, 751.

estimation of free and combined, volumetrically (FRERICHS), A., ii, 389.

estimation of, volumetrically, in sulphates (GAWALOWSKI), A., ii, 99.

Hartleb's method for the estimation of, in drinking water (ROSSI), A., ii, 178.

estimation of, in presence of zinc (THIEL), A., ii, 691.

Sulphates, hydration and hardening of some (ROHLAND), A., ii, 539.

Sulphur acids:—

Hyposulphurous acid (MEYER), A., ii, 285.

Hyposulphites, preparation of (PETER SPENCE & SONS, LTD, & E KNECHT), A., ii, 474.

Persulphuric acid, velocity of transformation of, into Caro's acid, and the formula of the latter (MUGDAN), A., ii, 640.

Persulphates, electrolytic preparation of (LEVI), A., ii, 474.

action of, on mercury (TARUGI), A., ii, 481.

analysis of (VITALI; MARIE and BUNEL), A., ii, 752.

estimation of (TARUGI), A., ii, 238.

quantitative separations by, in acid solution (DITTRICH and HASSEL), A., ii, 243, 454.

Thiosulphuric acid, conditions of formation and stability of (ALOY), A., ii, 591.

Thiosulphates, detection of, in foods in presence of sulphites (ARNOLD and MENTZEL), A., ii, 573.

Dithionic acid, formation of (MEYER), A., ii, 18; (ANTONY), A., ii, 723.

Sulphur organic compounds, possible method of preparing (MITTASCH), A., i, 675.

Sulphur, detection of arsenic and selenium in (STEEL), A., ii, 41.

estimation of, by hydrogen peroxide (PETERSEN), A., ii, 690.

estimation of, in coal (STODDART), A., ii, 40.

estimation of, in coal and coke (SUNDSTRÖM), A., ii, 326.

estimation of, in coals, bitumens, petroleum, and organic substances (V. KONEK), A., ii, 572.

estimation of, in iron or steel (KLEINE), A., ii, 694.

estimation of, in pig iron (SEYL'R), A., ii, 450.

estimation of, in plant substances (BEISTLE), A., ii, 325.

estimation of, in organic materials (SHERMAN), A., ii, 325.

estimation of, in urine by means of sodium peroxide (MODRAKOWSKI), A., ii, 611.

Sumach leaves, influence of oxidising diastases on (Asó and Pozzi-Escot), A., ii, 322.

Superphosphates. See under Phosphorus.

Suprarenal bodies, lecithin in (BERNARD, BIGART, and LABBE; MULON), A., ii, 311.

Suprarenal capsules, extraction of adrenalin from (TAKAMINE), A., i, 376.

extract, behaviour of, to Fehling's solution (ABEL), A., i, 376.
physiological action of (S. J. and C. MELTZER), A., ii, 442.

effects of subcutaneous injection of (S. J. and C. MELTZER), A., ii, 564.

Suprarenine. See Epinephrine.

Surface energy, molecular, of some mixtures of liquids (RAMSAY and ASTON), A., ii, 133.

molecular, of fused salts, apparatus for the determination of (BOT-TOMLEY), T., 1422.

Surface tension, displacement of osmotic equilibrium by (KAUFLER), A., ii, 531.

and double layer at the common surface of two solvents (v. LERCH), A., ii, 13.

of liquids, new determinations of the (GRUNMACH), A., ii, 132.

of mixtures of normal liquids (HERZEN), A., ii, 132.

Synthesis, asymmetric (FISCHER and SLIMMER), A., i, 696.

Syringic acid, synthesis of (GRAEBE and MARTZ), A., i, 262.

T.

Tabetic joints, influence of the viscid exudation from, on Bacteria (SELIGMANN), A., ii, 387.

Talebraric and Talebrarinic acids (HESSE), A., i, 706.

Tamanite. See Anapaitae.

Tannic acid, combination of, with bismuth (THIBAULT), A., i, 761.

estimation of (CROUZEL), A., ii, 113.

estimation of, by ferric salts (RUOSS), A., ii, 189.

Tannin and aesculin in horse chestnuts (GORIS), A., ii, 507.

estimation of, volumetrically (THOMPSON), A., ii, 113.

Tannins, estimation of (FELDMANN), A., ii, 519.

Tartar emetic. See Tartaric acid, antimony potassium salt.

Tartaric acid and its salts, action of, on lead sulphate (REICHARD), A., ii, 727.

ferric chloride as a test for (ROSENTHALER), A., ii, 765.

detection of, by means of *l*-tartaric acid (BRONSTED), A., ii, 248.

Tartaric acid and its salts, estimation of, polarimetrically (RICHARDSON and GREGORY), A., ii, 457.
 estimation of, polarimetrically, in commercial products (E. B. and F. B. KENRICK), A., ii, 112.

Tartaric acid, ammonium salt, compound of, with hydrogen fluoride (WEINLAND and STILLE), A., i, 731.
 antimony potassium salt (*tartaremetric*), standard solution of, and the structural formula of the salt (HALE), A., i, 7.
 cobalt and nickel salts, constitution of, in aqueous solution (TOWER), A., ii, 134.
 potassium hydrogen salt (*cream of tartar*), estimation of, gasometrically (DE SAPORTA), A., ii, 701.

Tartaric acid, mono- and *di-nitro*, and their esters, preparation and rotation of (FRANKLAND, HEATHCOTE, and HARTLE), T., 154.
 nitro-, esters (WALDEN), A., i, 148, 319.
 See also Racemic acid.

Tartaric acids, methylene compounds of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 149.

Tartaric di-ar- and -ac-tetrahydro- β -naphthylamides, difurylamide and dipiperidine, preparation and rotation of (FRANKLAND and ORMEROD), T., 1342; P., 230.

Tartramide, influence of various substituents on the rotation of (FRANKLAND and SLATOR), T., 1349; P., 229.

Taurine, formation of, from cystin in the organism (v. BERGMANN), A., ii, 665.

Tautomeric compounds, nature and probable mechanism of the replacement of metallic by organic radicles in (LANDER), T., 414; P., 47.

Tautomerism, especially in the semi-cyclic 1:3-diketone of the pentamethylene series (STOBBE and WERDERMANN), A., i, 421.

Tawite from Finland (BORGSTRÖM), A., ii, 304.

Tea leaf, enzymes of the (MANN), A., ii, 388.

Tea seed oil (WIJS), A., i, 602.

Teeth, fluorine in (JODLBAUER), A., ii, 311.

Tellurides from Western Australia (SPENCER), A., ii, 378; (LIVEING), A., ii, 654.

Tellurium, atomic weight of (KÖTHNER), A., ii, 360; (SEUBERT), A., ii, 539.

Tellurium, action of, on organo-magnesium compounds (WUYTS and COSYNS), A., i, 686.
 action of, on gold and silver salts (HALL and LENHER), A., ii, 154.

Tellurium compounds with sulphur (GUTBIER and FLURY), A., ii, 71.

Tellurium, double haloiods of, with the alkaloids (LENHER and TRRUS), A., i, 774.
 dioxide, action of phenylhydrazine on (GUTBIER), A., i, 120.
 sulphides, colloidal solutions of (GUTBIER), A., ii, 71.

Tellurium, estimation of (FRERICHS), A., ii, 41.
 estimation of, electrolytically, as oxide, by anodic precipitation (HEIBERG), A., ii, 614.
 estimation of, gravimetrically (MCIVOR), A., ii, 328.
 estimation of, gravimetrically, by means of hypophosphorous acid (GUTBIER and ROHN), A., ii, 100.
 separation of, quantitatively, from antimony (GUTBIER and RESEN-SCHICK), A., ii, 100.
 separation of, quantitatively, from selenium (PELLINI), A., ii, 752.

Tellurium minerals, action of sulphur monochloride on certain (MACIVOR), A., ii, 205.

Temperature. See Thermochemistry.

Teraconic acid (*pentenedicarboxylic acid*), preparation of (PETKOW), A., i, 147; (STOBBE), A., i, 231.
 esterification of (STOHLÉ), A., i, 317.

$\Delta^{1,4}(8)$ -Terpadienol(2) or (3) and its oxime and derivatives (MANASSE and SAMUEL), A., i, 45.

Terpene, $C_{10}H_{16}$, from the oil of *Cinnamomum pedatinerium* of Fiji (GOULDING), T., 1095; P., 201.

Terpene hydrate, some transformations of (DENARO and SCARLATA), A., i, 844.

Terpene series, reduction in the (SEMMLER), A., i, 505.

Terpenes and ethereal oils (WALLACH), A., i, 103, 567; (WALLACH and BÖCKER), A., i, 105.
 cyclic, in the organism (FROMM, HILDEBRANDT, and CLEMENS), A., i, 429; (HILDEBRANDT), A., ii, 166.

Tetra-azoindigotin, absorption spectra of (EDER), A., i, 344.

Tetrabenzylmethylenediamine and its reactions (v. BRAUN and RÖVER), A., i, 464.

Tetraethanolethylenediamine and its platinichloride (KNORR and BROWNS-DON), A., i, 153.

Tetraethylidiaminodiphenylanthrone (HALLER and GUYOT), A., i, 348.
4:4'-Tetraethylidiaminodiphenylmethane, 2,2'-dinitro- (EPSTEIN), A., i, 580.

Tetraethylammonium iodide, double salt of, with silver iodide (STRÖM-HOLM), A., i, 233.
 periodides (STRÖM-HOLM), A., i, 462.

Tetra-ethylphosphonium chloride and hydroxide, hydroxy- (PARTHEIL and GRONOVER), A., i, 801.

Tetraenic double salts (MEYERHOFFER), A., ii, 292.

Tetraheptyl alcohol (GUERBET), A., i, 3.

Tetrahydrobenzoic acids, Δ^1 - and Δ^2 , methyl esters, and their rotation (RUPE, LOTZ, and SILBERBERG), A., i, 566.

Tetrahydrocarvonylacetoacetic acid, chloro-, ethyl ester, tautomeric forms (RABE), A., i, 268; (RABE and WEILINGER), A., i, 269.

Tetrahydro- β -dinaphthylene oxide and *d*bromo- (HÖNIGSCHMID), A., i, 165.

Tetrahydropyrene oxide, reduction of (HÖNIGSCHMID), A., i, 165.

Tetrahydronaphthalene in coal tar (BOES), A., i, 161.

Tetrahydro- α -naphthoic acid, methyl ester, and its rotation (RUPE, LOTZ, and SILBERBERG), A., i, 566.
 8-amino-, and its methyl ester and acetyl derivative (SCHROETER and RÖSSLER), A., i, 118.

ac-**Tetrahydro- β -naphthylamine**, oxidation of (BAMBERGER and SELIGMAN), A., i, 324.

Tetrahydroquinazoline and its salts (GABRIEL), A., i, 446.

Tetrahydroisoquinoline-2-acetic acid, ethylester (WEDEKIND and OECHSLER), A., i, 517.

Tetrahydrotoluenes. See Methylcyclohexenes.

Tetrahydroxy- See under the parent Substance.

1:2:7:8-Tetramethoxybrazan, 5(or 10)-hydroxy-, and its acetyl derivative (v. KOSTANECKI and ROST), A., i, 646.

2:7:8:5(or 10)-Tetramethoxybrazan (v. KOSTANECKI and LLOYD), A., i, 645.

1:2:7:8-Tetramethoxybrazanquinone (v. KOSTANECKI and ROST), A., i, 646.

4:5:4:5'-Tetramethoxydibenzyl, 2:2'-dinitro- (HERZIG and POLLAK), A., i, 713.

Tetramethoxyindigotin (HAYDUCK), A., i, 826.

Tetramethylidiaminoanthraquinones, 1:5- and 1:8- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 499.

p-Tetramethylidaminoanthrarufin (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 499.

Tetramethylidiaminobenzhydrol, electrolytic preparation of (ESCHERICH and MOEST), A., i, 89.

Tetramethyl-p-diaminodibenzylideneacetone (SACHS and LEWIN), A., i, 38.

Tetramethylidiaminodiphenylanthrone (HALLER and GUYOT), A., i, 348.

4:4'-Tetramethylidiaminodiphenylmethane, 2-nitro- (EPSTEIN), A., i, 580.

as-**Tetramethylidiaminophenyldiphenylenemethane** (GUYOT and GRANDERYE), A., i, 748.

Tetramethylidiaminotriphenylcarbinol, 3:4-dihydroxy-, and its diacyl derivatives (LIEBERMANN), A., i, 861.

4:4'-Tetramethylidaminotriphenylmethane, 3:4-*di*- and 3:4:2':2"-tetrahydroxy-, and their acyl derivatives (LIEBERMANN), A., i, 860.

Tetramethylammonium, preparation of (PALMAER), A., i, 12.
 periodides (STRÖM-HOLM), A., i, 462.

aa'a'-**Tetramethylidihydrouronic acid** and its oxidation product (BONE and HENSTOCK), T., 1384; P., 247.

2:5:2':5'-Tetramethylidiphenyltrichloroethane, 4:4'-dihydroxy- (AUWERS), A., i, 622.

Tetramethylene carboxylic acid, methyl ester, and its rotation (RUPE and ZELTNER), A., i, 566.

Tetramethylenediamine, *N*-diacetyl derivative (HAGA and MAJIMA), A., i, 291.

Tetramethyleneethylene. See Hexylene.

Tetramethylgluconic acid, salts and lactone of (PURDIE and IRVINE), T., 1933; P., 193.

Tetramethylglycollide (EINHORN and METTLER), A., i, 30.

Tetramethylhaematoxylene, dinitro- (HERZIG and POLLAK), A., i, 270.

$\beta\gamma\delta\epsilon$ -Tetramethylhexane- $\gamma\delta$ -diol and its isomeride (BEAUME), A., i, 727.

Tetramethyl-p-phenylenediamine (MEYER), A., i, 861.

Tetramethylphloroglucinolphthalein (LIEBERMANN and ZERNER), A., i, 488.

Tetramethylpiperazinium *di*-iodide and mercurichlorides (STRÖM-HOLM), A., i, 139.
 salts (STRÖM-HOLM), A., i, 291, 463.

Tetramethylrosaminesulphonic acid, *d*ihydroxy- (LIEBERMANN), A., i, 861.

2:5:2':5'-Tetramethylstilbene, 4:4'-*di*-hydroxy-, and its diacetate (AUWERS), A., i, 622.

Tetramethylthiouram sulphide (v. BRAUN and STECHELE), A., i, 619.

Tetraphenylbutadiene (VALEUR), A., i, 416.
s-Tetraphenylbutane (FROMM and ACHERT), A., i, 341.
Tetraphenylbutanediol and the products of its dehydration (VALEUR), A., i, 416.
Tetraphenylcarbamic phenylcarbamide (ROUX), A., i, 463.
Tetraphenylcarbamine disulphide (v. BRAUN and RUMPF), A., i, 620.
Tetraphenylcarbazide (ACREE), A., i, 862.
Tetraphenylmethane and amino- (ULLMANN and MÜNZHUBER), A., i, 245. and nitro- (GOMBERG and BERGER), A., i, 473.
Tetraphenylmethaneazodimethylamine (ULLMANN and MÜNZHUBER), A., i, 245.
Tetraphenylcyclopentene (AUERBACH), A., i, 412.
Tetraphenyltetrahydrofuran (VALEUR), A., i, 416.
Tetraphenyl-m-tolyldiguanide and its platinichloride (ALWAY and VIELE), A., i, 201.
Tetraarin (GILSON), A., i, 355.
Tetrasulphido-p-phenylenediamine (GREEN and PERKIN), T., 1211; P., 206.
Tetrazoic chlorides, action of, on ethyl oxalacetate (RABISCHONG), A., i, 55.
Tetrone-4-carboxylic acid, methyl ester, and its ammonium and methyl ammonium derivatives, and ethyl ester, synthesis of (ANSCHÜTZ and BERTRAM), A., i, 271.
Tetronic acid, synthesis of (ANSCHÜTZ and BERTRAM), A., i, 271.
Tetronylazoacetoacetic acid and its ethyl ester (WOLFF, BOCK, LORENTZ, and TRAPPE), A., i, 208.
Thalassin (RICHE), A., ii, 318.
Thalassochelys corticata, the mesenterial fat of (ZDAREK), A., ii, 499.
Thallium, tervalent, salts and double-salts of (MEYER and GOLDSCHMIDT), A., ii, 211.
Thallium chloronitro-iridium compound (MIOLATI and GIALDINI), A., ii, 25.
Thallium pentasulphide (HOFMANN and HÖCHTLEN), A., ii, 728.
Thallic chloride (THOMAS), A., ii, 147.
 sulphates and double sulphates (MARSHALL), A., ii, 21.
Thallium, iodometry of, as chromate (RUPP and ZIMMER), A., ii, 183.
Thebaol, constitution of (PSCHORR, SEYDEL, and STÖHRER), A., i, 167.
Thebaol methyl ether, identity of, with 3:4:6-trimethoxyphenanthrene (VON-GERICHTEN), A., i, 168.
Thebenine from codeine (KNORR), A., i, 849.
Theobromine, preparation of (DEKKER), A., ii, 172.
 estimation of, in cacao (WELMANS), A., ii, 250; (DEKKER), A., ii, 459, 619.
Theocine (1:3-dimethylxanthine) and its salts (EICHENGRÜN), A., i, 195.
Theophylline, and its alkali derivatives, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 527.
Therapeutics, organic arsenic in (d' EMILIO), A., ii, 252.
THERMOCHEMISTRY :—
Thermochemical constant, a (CLARKE), A., ii, 8; (v. LOEBEN), A., ii, 269; (THOMSEN), A., ii, 410.
 researches on pyridine and on α , β , and γ -picolines (CONSTAM and WHITE), A., i, 276.
 results, calculation of (RICHARDS), A., ii, 209.
 studies of rosaniline and pararosaniline (SCHMIDLIN), A., ii, 633.
Thermochemistry of Cinchona alkaloids (BERTHELOT and GAUDECHON), A., i, 773; ii, 197, 270.
 of water gas (HAHN), A., ii, 274, 711.
Thermomagnetic properties of bismuth (LOWNDS), A., ii, 264.
Heat, action of, on organic acids (OECHSNER DE CONINCK), A., i, 730.
 spontaneously developed by radium salts (CURIE and LABORDE), A., ii, 247.
Heat change and fermentations (HERZOG), A., ii, 468.
Heat radiations of certain oxides (FÉRY), A., ii, 124.
Thermal conductivity of some alloys (SCHULZE), A., ii, 58.
 of argon and helium, determination of, by Schleiermacher's method (SCHWARZE), A., ii, 465.
 of crystallised bismuth (PERROT), A., ii, 466.
Thermal properties of solids and liquids (LUSSANA), A., ii, 713.
Temperature, measurement of (TRAVERS, SENTER, and JAQUEROD), A., ii, 9.
 and chemical constitution, relation of viscosity of liquid substances to (BATTSCHINSKI), A., ii, 12.
 relation of, to velocity of crystallisation (BORODOWSKY), A., ii, 357.

THERMOCHEMISTRY :—*Heat of combustion* = *c*; *of decomposition* = *d*; *of formation* = *f*; *of hydration* = *h*; *of neutralisation* = *n*; *of transformation* = *t*.

Temperature of maximum density for aqueous solutions of some organic substances (MÜLLER), A., ii, 355.

influence of, on the conductivity of electrolytic solutions (BOUSFIELD and LOWRY), A., ii, 52; (KOHLRAUSCH), A., ii, 403.

influence of, on the rate of decomposition of diazo-compounds (CAIN and NICOLL), T., 470; P., 63.

Temperature coefficient of the specific rotation of sucrose, dependence of the, on the temperature and wave-length (SCHÖNROCK), A., ii, 764.

of the index of refraction of gases (WALKER), A., ii, 623.

of conductivity in organic solvents (COFFETTI), A., ii, 404.

of electrical conductivity of solutions in water and in organic solvents, influence of superfusion and of maximum density on the (CARRARA and LEVI), A., ii, 4.

Thermometer, centigrade, zero of the, on the absolute scale (GROSHANS), A., ii, 264.

Critical constants. See under Critical.

Transition points, finding of, with a self-registering dilatograph (v. SAHΜΕΝ and TAMMANN), A., ii, 356.

of lithium nitrate and its hydrates (DONNAN and BURT), T., 335; P., 37.

Transition temperature of the hydrates of barium acetate (WALKER and FYFFE), T., 182.

of sodium sulphate (RICHARDS and WELLS), A., ii, 411.

Trouw's formula and van der Waal's equation, relation between (BRANDT), A., ii, 635.

and other constants at the boiling point (KURBATOFF), A., ii, 710.

Specific heat of alloys of aluminium and copper (LUGININ and SCHÜKAREFF), A., ii, 272.

of aniline (KURBATOFF), A., i, 246; (DE FORCRAND), A., ii, 409.

of cerium and lanthanum hydrides and nitrides (KELLENBERGER and KRAF), A., ii, 213.

of metals, especially at low temperatures (SCHMITZ), A., ii, 632.

and its relation to atomic weight (TILDEN), A., ii, 265.

Specific heat of solutions of naphthalene in various organic solvents (FORCH), A., ii, 632.

Heat of calefaction and its employment in alcoholometry (BORDIER), A., ii, 264.

Heat of fusion of aniline and acetic acid (DE FORCRAND), A., ii, 409.

Molecular heat of solidification, relation between the, and the boiling point (DE FORCRAND), A., ii, 267, 353, 466.

Latent heat, the Clapeyron-Clausius equation for (HÄLLSTÉN), A., ii, 130.

Heat of vaporisation, relation between, and critical magnitudes (BATSCHINSKI), A., ii, 409.

of air (BEHN), A., ii, 711.

Latent heat of vaporisation, direct method of determining (BROWN), T., 987; P., 164.

of aniline (KURBATOFF), A., i, 246.

of aniline, *o*-toluidine, certain of their derivatives and other organic substances (LUGININ), A., ii, 7.

of mercury (KURBATOFF), A., ii, 130.

Thermochemical data of aluminium fluoride (*f.*) (BAUD), A., ii, 150.

of barium compounds (*f.*) (GUNTZ), A., ii, 410.

of cinchonamine, cinchonidine, and cinchonine (*c. f.* and *n.*) (BERTHELOT and GAUDECHON), A., ii, 270.

of alloys of copper and aluminium (*f.*) (LUGININ and SCHÜKAREFF), A., ii, 271.

of some compounds containing nitrogen and sulphur (*f.*) (DELÉPINE), A., ii, 269.

of cryolites (*f.* and *h.*) (BAUD), A., ii, 214.

of hydrocarbons (*c.*) (LEMOULT), A., ii, 410.

of hydroferrocyanic acid (*n.*) (CHRÉTIEN and GUINCHANT), A., ii, 589.

of compounds of hydroferrocyanic acid with ether and with acetone (*f.*) (CHRÉTIEN and GUINCHANT), A., ii, 589.

of hydrogen (*c.*) (MIXTER), A., ii, 711.

of iron oxides (*f.*) (BAUR and GLAESSNER), A., ii, 423.

of lead tetra-acetate and tetrabutyl ionate (*d.*) (COLSON), A., i, 601.

THERMOCHEMISTRY :—*Heat of combustion = c ; of decomposition = d ; of formation = f ; of hydration = h ; of neutralisation = n ; of transformation = t.*

Thermochemical data of various minerals (*f.*) (VAN'T HOFF and JUST ; VAN'T HOFF and MEYERHOFFER), A., ii, 555.

of the phenylmethanes, their carbinals, and chlorides (*c.* and *f.*) (SCHMIDLIN), A., ii, 530.

of metaphosphoric acid (*f. t.* and *n.*) (GIRAN), A., ii, 197.

of phosphorus (*c.* and *f.*) (GIRAN), A., ii, 270.

of white phosphorus into red phosphorus (*t.*) (GIRAN), A., ii, 362.

of quinine and quinidine (*c. f.* and *n.*) (BERTHELOT and GAUDECHON), A., ii, 197.

Heat of solution and the change of solubility with temperature in the case of dissociated substances, thermodynamical relation between the (NOYES and SAMMET), A., ii, 468.

of alloys of aluminium and copper (LUGININ and SCHÜKAREFF), A., ii, 271.

of aluminium fluoride (BAUD), A., ii, 150.

of cryolites (BAUD), A., ii, 214.

of lead tetra-acetate in acetic acid (COLSON), A., i, 601.

of naphthalene in various organic solvents (FORCH), A., ii, 632.

of metaphosphoric acid (GIRAN), A., ii, 197.

of potassium and sodium salts (VARALI-THEVENET), A., ii, 131.

of quinidine and quinine (BERTHELOT and GAUDECHON), A., ii, 198.

Thiazoles, identity of, with thiocarbazines (HUGERSHOFF), A., i, 866.

Thio-acids, R.CO.SH (AUGER and BILLY), A., i, 310.

formation of (WEIGERT), A., i, 418.

*di***Thiocarbamic acid**, ammonium salt, action of alkyl haloids on (DELÉPINE), A., i, 156.

*di***Thiocarbamic acid**, esters (BOGERT), A., i, 404.

from ammonia (DELÉPINE), A., i, 236.

Thiocarbamide and ammonium thiocyanate, dynamic isomerism of (REYNOLDS and WERNER), T., 1.

action of, on chromium chloride dihydrate (PFEIFFER), A., i, 612.

metallic derivatives of (ROSENHEIM and LOEWENSTAMM), A., i, 325 ; (KOHLSCHEUTTER), A., i, 468.

Thiocarbamide, estimation of, volumetrically, by means of iodine (REYNOLDS and WERNER), T., 1.

*di***Thiocarbamide** di-iodide, dissociation and ionisation of (MARSHALL), A., i, 16.

Thiocarbamides, formation and decomposition of (HUGERSHOFF), A., i, 477.

action of methyl and ethyl chlorocarbonates on (DIXON), T., 550 ; P., 104.

aromatic, action of bromine on (HUGERSHOFF), A., i, 865.

Thiocarbamides, nitro-, aromatic, reactions of (ELBS and SCHLEMMER), A., i, 555.

*di***Thiocarbamides**, class of, described as normal thiocarbamides (WHEELER and JAMIESON), A., i, 751.

condensation products of (WHEELER and MERRIAM), A., i, 524.

Thiocarbazines, identity of, with thiazoles (HUGERSHOFF), A., i, 866.

Thiocarbimides, interactions of, with silicophenylamide (REYNOLDS), T., 252 ; P., 6.

behaviour of, towards magnesium organic compounds (SACHS and LOEVEY), A., i, 334.

Thiocarbonates of heavy metals (HOFMANN and HÖCHTLEN), A., ii, 428.

*di***Thiocarbonic esters**, imino- (DELÉPINE), A., i, 237.

Thiocyanates, cyanates, cyanides, and sulphides, estimation and separation of (MILBAUER), A., ii, 392.

and bromine, separation of (KÜSTER and THIEL), A., ii, 136, 510.

Thiocyanic acid, Solera's test and new methods for the detection of (GANASINI), A., ii, 765.

Thiocyanic acid, cobaltammonium compounds (SAND), A., i, 467.

Thiocyanic acid, double and triple metallic salts (WELLS, WALLBRIDGE, BRISTOL, LEAVENWORTH, ROBERTS, MERRIAM, and HUPFEL), A., i, 154 ; (SHINN and WELLS), A., i, 467 ; (WELLS), A., i, 737.

cæsium, cobalt and silver salts (SHINN and WELLS), A., i, 467.

Thiocyanic acid, esters, and their action on thioacetic acid and ethyl mercaptan (SPAHR), A., i, 477.

*iodo***Thiodiazolones**, nomenclature of (BUSCH), A., i, 530.

Thionaphthen from brown-coal-tar (BOES), A., i, 50.

4-Thion-2-alkyldihydroquinazolines, synthesis of (BOGERT, BRENEMAN, and HAND), A., i, 527.

Thionyl chloride. See under Sulphur.

Thioquinanthren hydrobromide and hydrochloride and their isomerides (EDINGER and EKELEY), A., i, 58.

Thiosulphuric acid. See under Sulphur.

Thiouram sulphides (v. BRAUN and STECHELE), A., i, 618.

Thiouram and isoThiouram disulphides (v. BRAUN), A., i, 619.

Thorite, composition of (SCHILLING), A., ii, 85.

Thorium, metallic, preparation of (SIEMENS and HALSKER), A., ii, 432. radioactive (HOFMANN and ZERBAN), A., ii, 732. radioactivity of, compared with that of radium (RUTHERFORD and SODDY), A., ii, 347.

Thorium compounds (ROSENHEIM, SAMTER, and DAVIDSOHN), A., ii, 601.

Thorium metoxile (WYROUBOFF), A., ii, 81. hydrogen, rubidium, and caesium sulphates (MANUELLI and GASPARINETTI), A., ii, 375.

Thorium organic compounds (ROSENHEIM, SAMTER, and DAVIDSOHN), A., ii, 602.

Thorium, separation of, from the rare earths (METZGER), A., ii, 109.

Thujene (KONDAKOFF and SKWORZOFF), A., i, 642.

Thymine, synthesis of (WHEELER and MERRIAM), A., i, 525.

Thymol from the oil of *Origanum floribundum* (BATTANDIER), A., i, 165. estimation of, volumetrically (ZDAREK), A., ii, 111.

Thymol, bromo- and iodo-derivatives of (DANNENBERG), A., i, 338.

Thymol ethyl ether, action of nitric acid on (DECKER and SOLONINA), A., i, 838.

Thymolyl-p-ethylthymolylamine, *N*- and *p*-acetyl derivatives of (DECKER and SOLONINA), A., i, 839.

Thymoquinone-thymolimide and its ethyl ether and its oxime, and acetyl derivative (DECKER and SOLONINA), A., i, 839.

Thymus gland. See under Gland.

Tiger snake, Australian. See *Hoplocephalus curtus*.

Tiglic acid. See Pentenoic acid.

Tin alloys, sulphuric acid as solvent for (NISSENSON and CROTOGINO), A., ii, 108.

Tolyl compounds Me=1.

Tin alloys with bismuth and lead (SHEPHERD), A., ii, 77, 196. with mercury (ROOZEBOOM and VAN HETEREN), A., ii, 216. melting points of (VAN LAAR), A., ii, 266.

Stannous chloride, reactions with (DE JONG), A., ii, 108.

Tin organic compounds (DILTHEY), A., i, 406. containing halogens (POPE and PEACHEY), A., i, 741. compounds of, with methyl (PFEIFFER and LEHNARDT), A., i, 470, 802.

Stannimethane, preparation of tetraalkyl derivatives of (POPE and PEACHEY), P., 290.

Tin, estimation of, and separation of, from antimony (RATNER), A., ii, 109. separation of, electrolytically, from antimony (FISCHER), A., ii, 616 arsenic, and antimony, qualitative separation of (WALKER), T., 184.

Titanium trichloride in volumetric analysis (KNECHT), A., ii, 217; (KNECHT and HIBBERT), A., ii, 509. *tetrafluoride* and its derivatives (RUFF and IPSEN), A., ii, 550. *sesquioxide* or its hydrate as reducing agents (KNECHT), A., ii, 217.

Titanic acid, reduction of, by nascent hydrogen (REICHARD), A., ii, 217.

Titanium, vanadium, tungsten, and molybdenum, detection and separation of (REICHARD), A., ii, 217.

Toads, active components of the secretions of the skin glands of (FAUST), A., ii, 313.

Tobacco, manurial experiments on (LEHMANN), A., ii, 681.

Tolane (*diphenylacetylene*) chlorides (LOB), A., i, 807, 811.

Tolane (*diphenylacetylene*), *di-p*-amino-, and its salts and diacetyl derivative (ZINCKE and FRIES), A., i, 182. *di-p*-hydroxy-, chloro-compounds of, and their diacetates (ZINCKE and FRIES), A., i, 182.

Tolanequinone dichloride, *tetrachloro-* (ZINCKE and FRIES), A., i, 183.

o-Tolidine-2:2'-sulphonic acid and its bisdiazoo- and acetyl derivatives (ELBS and WOHLFAHRT), A., i, 212.

p-Tolualdehydes, hydroxy-, phenylhydrzones of (ANSELMINO), A., i, 122.

Tolualdoximes (SCHOLL and KAČER), A., i, 254.

Toluene and benzene, vapour pressures and boiling points of mixtures of (YOUNG and FORTEY), T., 58.

(*Tolyl compounds Me=1.*)

Toluene and ethylbenzene, vapour pressures and boiling points of mixtures of (YOUNG and FORTHEY), T., 52.
action of sulphur on (ARONSTEIN and VAN NIEROP), A., i, 158, 329.

Toluene, *o*-, *m*-, and *p*-bromo- and -chloro-, behaviour of, in the organism (HILDEBRANDT), A., ii, 228.
ω-bromonitrocyano- (FLÜRSHEIM), A., i, 79.
o-chloro-, preparation of (GESELLSCHAFT FÜR CHEMISCHE INDUSTRIE IN BASEL), A., i, 331.

3:5-*d*hydroxy-. See Orcinol.

m-iodo-, containing polyvalent iodine, derivatives of (WILLGERODT and UMBACH), A., i, 743.

m-iodoso- and *m*-iodoxy- (WILLGERODT and UMBACH), A., i, 743.

m-iodoso-, fluoride (WEINLAND and STILLE), A., i, 748.

p-nitro-, electrolytic reduction of (GOECKE), A., i, 615.

p-Tolueneazo-*p*-benzaldehyde, and *p*-benzylidene-*p*-toluidine (ALWAY), A., i, 707.

Tolueneazocarbanilides, *o*- and *p*- (BUSCH and FREY), A., i, 538.

m-Tolueneazo-*β*-naphthol (v. NIEMEN-TOWSKI), A., i, 133.

p-Tolueneazo-*β*-naphthol, 3:5-dibromo- (ORTON), T., 812; P., 162.

p-Toluene-4-azo-1-phenyl-3-methyl-5-pyrazolone (LAPWORTH), T., 1124; P., 149.

p-Toluenesulphinic acid, derivatives of (v. MEYER), A., i, 808.

p-Toluenesulphone-*o*-amino-benzoic acid and -benzophenone (ULLMANN and BLEIER), A., i, 176.

p-Toluenesulphone-2-amino-4'-methoxy-benzophenone (ULLMANN and BLEIER), A., i, 176.

p-Toluenesulphone-*o*-aminophenyl *p*-tolyl ketone (ULLMANN and BLEIER), A., i, 176.

p-Toluenesulphone-*o*-methylamino-benzoic acid, methyl ester, and -benzophenone (ULLMANN and BLEIER), A., i, 176.

Toluene-*p*-sulphonic acid, electrolytic oxidation of (SEBOR), A., i, 554.

Toluene-*p*-sulphonic acid, esters, as alkylating agents (ULLMANN and WENNER), A., i, 407.

Toluene-*ω*-sulphonic acid, chlorodinitro-, and its calcium salt (KALLE & Co.), A., i, 616.

nitroaminohydroxy-, and its salts and diazonium compound (KALLE & Co.), A., i, 616.

(*Tolyl compounds Me=1.*)

Toluene-*p*-sulphonic chloride, *o*-chloro- (GESELLSCHAFT FÜR CHEMISCHE INDUSTRIE IN BASEL), A., i, 331.

o-Toluenesulphonic methylamide (REMSSEN and CLARK), A., i, 823.

Toluic acids, *m*- and *p*-, acid salts of, and the effect of water and alcohol on them (FARMER), T., 1442; P., 274.

Toluic acids, hydroxy-, anilides of (EINHORN and METTLER), A., i, 30.

o- and *p*-thiol- (WEIGERT), A., i, 418.

o-Toluidine, latent heat of vaporisation of (LUGININ), A., ii, 7.

o-Toluidine, dibromo- and dichloro-, *N*-acetyl derivative of (VERDA), A., i, 21.

m-Toluidine, *N*-acetyl derivative, constitution of the products of nitration of, and their chloro-derivatives (COHEN and DAKIN), T., 331.

2-, 4-, and 6-chloro-, and their *N*-acetyl derivatives (BAMBERGER and DE WERRA), A., i, 21; (BAMBERGER, TER-SARKISSJANZ, and DE WERRA), A., i, 25.

p-Toluidine, colour reaction for (BIEHRINGER and BUSCH), A., ii, 192.

p-Toluidine, *N*-bromo- and -chloro-, *N*-formyl derivatives of (SLOSSON), A., i, 476.

dibromo- and dichloro-, *N*-acetyl derivatives of (VERDA), A., i, 21.

trinitro-, action of amines on derivatives of (SOMMER), A., i, 655.

Toluidines, *o*- and *p*-, nitro-, *N*-formyl derivatives of (GEIGY & Co.), A., i, 522.

m-Toluidine *p*-toluene-sulphinate and -sulphonate (v. MEYER and E. MEYER), A., i, 810.

1:5-*p*-Toluidinodimethylaminoanthraquinone (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 499.

Toluidinomalic acids, and nitroso-, ethyl esters (CURTISS), A., i, 754.

5:1-*p*-Toluidinomethylaminoanthraquinone (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 564.

1-*o*- and *p*-Toluidino-3-methylthiazoles and their acetyl derivatives (HUGERSHOFF), A., i, 865.

o-Toluidino-methyl and -ethyl ethers (LANDER and JEWSON), T., 769; P., 160.

p-Toluquinol, dichlorohydroxy- (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 760.

chloronitro-, and its diacetate (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 759.

(*Tolyl compounds Me=1.*)

p-Toluquinone, dichlorohydroxy- (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 760.

Toluquinonedioxime, benzoyl derivatives of (OLIVERI-TORTORICI), A., i, 838.

p-Toluylbenzamide (WHEELER, JOHNSON, and MC FARLAND), A., i, 859.

p-Toluyltartaric acid, nitro-, ethyl ester, preparation and rotation of (FRANKLAND, HEATHCOTE, and GREEN), T., 168.

p-Tolyl o-amino-m-tolyl sulphide and its salts and acyl and aldehydic derivatives (v. MEYER and E. MEYER), A., i, 809.

m-amino-o-tolyl sulphide and its salts (v. MEYER and E. MEYER), A., i, 810.

Tolyl benzyl ethers, substituted (FARWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 818.

ethyl and ethylene ethers, bromo-derivatives of (STOERMER and GOHL), A., i, 848.

p-iodofluoride (WEINLAND and SILLE), A., i, 748.

m-Tolyl methyl ether, 2:4:6-trinitro- (BLANKSMA), A., i, 164.

Tolyl disulphides, *o*- and *p*- (WEIGERT), A., i, 418.

p-Tolylacetylylanilinosulphoxide (v. MEYER and HEIDUSCHKA), A., i, 809.

p-Tolylazooacetoacetic acid, methyl ester (LAPWORTH), T., 1121; P., 149.

p-Tolylazocyanooacetic acid, methyl ester, and its rotation (BOWACK and LAPWORTH), P., 23.

o-Tolylbenzylamidine, benzoyl derivatives (WHEELER, JOHNSON, and MC FARLAND), A., i, 859.

m-Tolyldichloroethyliodinium hydroxide and salts (WILLGERODT and UMBACH), A., i, 745.

p-Tolylphenylcarbamide, thio- (v. MEYER and HEIDUSCHKA), A., i, 808.

m-Tolylenediamine, formyl derivatives (GEIGY & Co.), A., i, 522.

S-*o*-, *m*-, and *p*-Tolylhydantoins and their γ -alkyl compounds and their bromo-derivatives (FRERICHS and BREUSTEDT), A., i, 17.

Tolylhydrazonecyanooacetic acids, *o*- and *p*-, ethyl esters, and their acetyl derivatives and amides (WEISSBACH), A., i, 541.

m-Tolylhydroxylamine, action of hydrochloric acid on (BAMBERGER and DE WERRA), A., i, 21; (BAMBERGER, TER-SARKISSJANZ, and DE WERRA), A., i, 25.

(*Tolyl compounds Me=1.*)

m-Tolylmethylamine, 6-nitro- (TSCHERNIAC), A., i, 490.

p-Tolylmethylcarbinol and its phenylurethane (KLAGES and KEIL), A., i, 554.

Tolylmethylphthalimide, *o*-, *m*-, and *p*-nitro- (TSCHERNIAC), A., i, 490.

p-Tolyl-mono- and -di-methyl- ψ -thiocarbamides and their hydriodides (JOHNSON and BRISTOL), A., i, 752.

Tolyl oxides, nitro-, alkali, relations between the colour, composition, and constitution of the (FRAZER), A., i, 817.

6-p-Tolyoxy-m-toluic acid (FOSSE and ROBYN), A., i, 647.

p-Tolyl phenoxymethyl ketone and its oxime and sulphonic acid (STOERMER and ATENSTADT), A., i, 41.

p-Tolyl δ -phenylbutadiene ketone and its oxime (SCHOLTZ and WIEDEMANN), A., i, 436.

p-Tolylphenylcarbamic acid, thio-, ethyl ester (v. MEYER and HEIDUSCHKA), A., i, 808.

p-Tolylphenylcarbamide, thio- (v. MEYER and HEIDUSCHKA), A., i, 808.

p-Tolylphenyloxamic acid, thio-, ethyl ester, and amide (v. MEYER and HEIDUSCHKA), A., i, 808.

Tolylpiperidinecarbamides, *o*- and *p*- (BOUCHETAL DE LA ROCHE), A., i, 574.

p-Tolylpiperidylurethane, 3-bromo- (BOUCHETAL DE LA ROCHE), A., i, 776.

p-Tolylsulphonoacetanilide (v. MEYER and HEIDUSCHKA), A., i, 809.

p-Tolyl δ -*p*-tolylbutadiene ketone, and its oxime (SCHOLTZ and WIEDEMANN), A., i, 437.

p-Tolyl-*o*-tolylcarbamic acid, thio-, ethyl ester (v. MEYER and E. MEYER), A., i, 810.

p-Tolyl-*o*-tolylcarbamide, thio- (v. MEYER and E. MEYER), A., i, 810.

p-Tolyl-*o*-tolylloxamic acid, thio- (v. MEYER and E. MEYER), A., i, 810.

p-Tolyl-*m*-tolylloxamic acid, thio-, ethyl ester (v. MEYER and E. MEYER), A., i, 810.

p-Tolyl-*m*-tolylphenyl-carbamide and **-thiocarbamide**, thio- (v. MEYER and E. MEYER), A., i, 810.

p-Tolyl-*o*-tolylphenyl-carbamide, -thiocarbamide, and -oxamide, thio- (v. MEYER and E. MEYER), A., i, 810.

Tolytrimethylammonium methyl sulphates, *o*- and *p*- (ULLMANN), A., i, 395.

Tonometry, new laws of, which can be deduced from Raoult's experiments (WICKERSHEIMER), A., ii, 634.

Topaz from Western Australia (SIMPSON), A., ii, 381.

Toxin, intracellular, of the typhoid bacillus (MACFADYEN and ROWLAND), A., ii, 168.

Toxins and antitoxins, application of physical chemistry to the study of (ARRHENIUS and MADSEN), A., ii, 561.

Trachyte from Monte Amiata in Tuscany (STURLI), A., ii, 159.

Transition points and temperature. See under Thermochemistry

Transport numbers. See under Electrochemistry.

Trees, variation of the carbohydrate reserves in the stems and roots of (LECLERC DU SABLON), A., ii, 170.

Triacetonedihydroxylamine phenylhydrazone (HARRIES and FERRARI), A., i, 320.

2:7:8-Triacetoxypyrazanquinone (v. KOSTANECKI and LLOYD), A., i, 645.

Triacetylacetonylsilicon salts (DILTHEY), A., i, 405.

Triacetylacetonyltin salts (DILTHEY), A., i, 406.

Triacytlydextrose, hydrolysis of, by enzymes (ACREE and HINKINS), A., i, 218.

Triacetyl-. See also under the parent Substance.

Triisoamylamine ferri- and ferro-cyanides (CHRÉTIEN), A., i, 156.

Triisoamylcarbinol. See Hexadecyl alcohol.

Trianilinophenylphosphimide and its salts (LEMOULT), A., i, 672.

Triazobenzene (*phenylazoimide*), syntheses with (DIMROTH), A., i, 127, 450.

1:2:3-Triazole derivatives, formation of (DIMROTH), A., i, 127.

Triazoles, nomenclature of (BUSCH), A., i, 531.

synthesis of, by the action of sodium on nitriles (v. WALTHER and KRUM-BIEGEL), A., i, 661.

Tribenzoylchitose (NEUBERG and NEIMANN), A., i, 74.

$\alpha\gamma\epsilon$ -Tribenzoyl- $\beta\delta$ -diphenyl- α -methylpentane (ABELL), T., 362; P., 17.

s-Tribenzoylcyclotrimethylenes, synthesis of (PAAL and SCHULZE), A., i, 710.

Tribenzoyl-. See also under the parent Substance.

Tribenzylcarbinol (SACHS and LOEVEY), A., i, 592, 820; (HOUBEN), A., i, 826.

Tribenzyltrimethylenetriamine (HOCK), A., i, 465.

2:4:6-Tri-*p*-ethoxyphenyl-1:3:5-triazine (*tri-p-cthoxyacyaphenine*) (DIELS and LIEBERMANN), A., i, 867.

Triethylbenzene (GUSTAVSON), A., i, 471.

1:2:4-Triethylbenzene, and its 5-acetyl and tribromo-derivatives (KLAGES and KEIL), A., i, 553.

Triethylbenzene-aluminium chloride, additive and fermentative properties of (GUSTAVSON), A., i, 470, 804.

Triethylphosphine, action of, on ethylene chlorohydrin (PARTHEIL and GRONOVER), A., i, 801.

Triethyltrimethylenetriamine (HOCK), A., i, 465.

Triglycylglycineamidecarboxylic acid, ethyl ester (FISCHER), A., i, 467.

Triglycylglycinecarboxylic acid and its ethyl ester (FISCHER), A., i, 467.

Trigonelline from *Strophanthus hispidus* (KARSTEN), A., ii, 172.

Trihydroxy-. See under the parent Substance.

Triketomethyltetrahydrobenzene, tri-chloro- (ZINCKE, SCHNEIDER, and EMMERICH), A., i, 760.

Triketones (SACHS and WOLFF), A., i, 792.

$\beta\gamma\delta$ -Triketopentane, derivatives of (SACHS and WOLFF), A., i, 792.

$\beta\gamma\delta$ -Triketo- δ -phenylbutane, derivatives of (SACHS and WOLFF), A., i, 792.

2:3:4-Trimethoxybenzoylacetone (BLUMBERG and v. KOSTANECKI), A., i, 644.

2:7:8-Trimethoxybrazan (v. KOSTANECKI and LLOYD), A., i, 645.

2:7:8-Trimethoxybrazanquinone (v. KOSTANECKI and LLOYD), A., i, 646.

3:4:6 Trimethoxyphenanthrene, identity of, with thebaol methyl ether (VONGERICHTEN), A., i, 168.

and its picrate and dibromo-derivative (PSCHORR, SEYDEL, and STÖHRER), A., i, 167; (VONGERICHTEN), A., i, 168; (KNORR), A., i, 849.

3:4:6 Trimethoxyphenanthrene-9-carboxylic acid and its salts (PSCHORR, SEYDEL, and STÖHRER), A., i, 167.

2:3:5 Trimethoxy-1-propylbenzene, and 4-nitro- (THOMS), A., i, 558.

2:4:6 Trimethoxypyrimidine (BÜTTNER), A., i, 659.

3:4:4 Trimethoxystilbene, 2-nitro- (PSCHORR, SEYDEL, and STÖHRER), A., i, 167.

$\alpha\gamma\gamma$ -Trimethylacetonedicarboxylic acid, ethyl ester, preparation and reduction of (PERKIN and SMITH), T., 775; P., 163.

Trimethylamine, *tri*amino-, tribenzoyl derivative of (DESCUDÉ), A., i, 72.

Trimethyltetraamino-diphenylmethane and -phenyl-*o*-tolylmethane (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 519.

Trimethylaminophenazonium methyl and ethyl nitrates (ULLMANN and WENNER), A., i, 407.

Trimethylammonium magnesium arsenate (BRISAC), A., i, 606.

phosphate (PORCHER and BRISAC), A., i, 607.

2:4:6-Trimethylbenzaldazine (HARDING), A., i, 287.

Trimethylbenzene, dichloro- (CROSSLEY), P., 227.

1:3:5-Trimethylbenzonitrile (SCHOLL and KAČER), A., i, 255.

2:4:6-Trimethylbenzyl-2:4:6-trimethylbenzylidenehydrazine and its acetyl, benzoyl, and nitroso-derivatives (HARDING), A., i, 287.

Trimethyl-*m*-biscyclohexenone, and its isomeride (KNOEVENAGEL), A., i, 638.

Trimethylbrazilone (HERZIG and POLLAK), A., i, 508.

and its oxime and its acetyl derivative, and bromo- (HERZIG and POLLAK), A., i, 270, 713.

Trimethylbrazilone, nitro-, and its oxime (HERZIG and POLLAK), A., i, 713.

$\gamma\gamma$ -Trimethylbutyric acid. See Heptioic acid.

Trimethylcarbinol. See *tert*-Butyl alcohol.

Trimethylene dicyanide, condensation of, with ethyl oxalate (MICHAEL), A., i, 736.

*cyclo***Trimethylene**, conversion of, into propylene (TANATAR), A., i, 1.

compounds (KOTZ and STALMANN), A., i, 741.

group, fission phenomena in the (Korz), A., i, 742.

*cyclo***Trimethylene carboxylic acid**, methyl ester, and its rotation (RUPE and ZELTNER), A., i, 566.

*cyclo***Trimethylene-mono- and -di-carboxylic acids**, dissociation constants of (BONE and SPRANKLING), T., 1378; P., 247.

*cyclo***Trimethylene-di-, -tetra-, and -hexa-carboxylic acids** (KOTZ and STALMANN), A., i, 742.

Trimethylenediamine, *N*-diacetyl derivative, and its oxalate (HAGA and MAJIMA), A., i, 291.

1:1:2-Trimethyl- $\Delta^{2:4}$ -dihydrobenzene, 3:5-dichloro- (CROSSLEY), P., 227.

Trimethylethylammonium periodides (STROMHOLM), A., i, 462.

1:2:4-Trimethyl-5-ethylbenzene and its sulphonic acid (KLAGES and KEIL), A., i, 554.

Trimethylethylene. See Amylene.

nitrosochloride. See Pentane (β -methylbutane), γ -chloro- β -nitroso-.

1:1:5-Trimethyl-2-ethylene-4:5-cyclopentene (BOUVEAULT and BLANC) A., i, 613.

1:3:3-Trimethyl-2-ethylideneindoline and its salts (PLANCHER and BONAVIA), A., i, 434.

1:3:3-Trimethyl-2-ethylindoline and its picrate (PLANCHER and BONAVIA), A., i, 434.

Trimethyl glucose. See Dextrose methyl ethers.

trans-a α -Trimethylglutaconic acid (*hexylenedicarboxylic acid*), synthesis of (PERKIN and SMITH), T., 777; P., 163.

a α -Trimethylglutaconic acid (*hexylenedicarboxylic acid*), esters (BLAISE), A., i, 548.

a α -Trimethylglutaric acid (*hexanedicarboxylic acid*), synthesis of, and its $\beta\gamma$ -dibromo- and β -hydroxy-derivatives (PERKIN and SMITH), T., 771; P., 163.

1:2:5-Trimethylindole (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 516.

1:1:2-Trimethyl-3-methylenecyclopentane (BOUVEAULT and BLANC), A., i, 613.

Trimethyl α -methylglucoside. See α -Methylglucoside methyl ethers.

Trimethylolbisacetophenone (VAN MARLE and TOLLENS), A., i, 493.

Trimethyloldiacetylmethylcyclohexone (KNOEVENAGEL), A., i, 639.

Trimethylpapaveroline and its additive salts (PICTET and KRAMERS), A., i, 358.

r-4:5:5-Trimethylcyclopentanone and its oxime and benzylidene derivative (BLANC and DESFONTAINES), A., i, 565.

Trimethylphloroglucinol, and its methyl ether (HERZIG and WENZEL), A., i, 491.

2:4:6-Trimethylpyridine from Scottish shale oil and its aurichloride (GARRETT and SMYTHE), T., 763; P., 164.

2:4:5-Trimethylsalicylaldehyde phenylhydrazone (ANSELMINO), A., i, 122.

Trimethylsuccinic acid (*pentanedicarboxylic acid*), hydroxy- (BONE and HENSTOCK), T., 1387.

Trimethylsuccinic anhydride, bromo-action of alcoholic potash and of diethylaniline on (BÖNE and HENSTOCK), T., 1387; P., 248.

Trimethyltetrolic acid. See Heptinoic acid.

Trimethyltrimethylenetriamine (HOCK), A., i, 465.

Trimethyluracil, oxidation of (BEHREND and FRICKE), A., i, 739.

Trimethylurethane (v. BRAUN), A., i, 14.

Trinaphthylenebenzene (*decacyclene*) (DZIEWOŃSKI and BACHMANN), A., i, 431; (REHLANDER), A., i, 571.

Trioxymethylene, formation of, by direct oxidation of aromatic compounds containing a β -allyl side-chain (TIFFENAU), A., i, 81.

solubility of, in sodium sulphite solutions (A. and L. LUMIÈRE and SEYEWETZ), A., i, 150.

Triphenylacetic acid from chlorodiphenylacetic acid (BISTRZYCKI and HERBST), A., i, 256.

Triphenylcarbinol, compounds of, with phenylhydrazine and with quinoline (TSCHITSCHIBABIN), A., i, 88.

Triphenylcarbinol, 3,5-dibromo-4-hydroxy- and its 4-acetate (AUWERS and SCHROETER), A., i, 820.

1:4:5-Triphenyldihydrotriazole, endo-imino and endothio- (BUSCH, KAMPHAUSEN, and SCHNEIDER), A., i, 531.

1:3:5-Triphenyl-2:4-dimethylcyclopentane, synthesis of (ABELL), T., 367; P., 18.

aaa-Triphenylethane, and triamino- and trinitro- (KUNTZE-FECHNER), A., i, 244.

p -hydroxy- (v. BAEYER, VILLIGER, and HALLENSLEBEN), A., i, 813.

Triphenylglyoxaline (*lophine*), and its sulphates (PINNER), A., i, 124.

Triphenylguanidine, reaction of, with 4-phenylsemithiocarbazide (SCHALL), A., i, 201.

Triphenylmethane, formation of (SCHMIDLIN), A., i, 687.

Triphenylmethane, amino- and nitro-derivatives (v. BAEYER and VILLIGER), A., i, 811.

ω -chloro-, action of zinc on (NORRIS and CULVER), A., i, 333; (GOMBERG), A., i, 472; (NORRIS), A., i, 618.

action of zinc on, and its compound with pyridine (NORRIS and CULVER), A., i, 333.

Triphenylmethane carboxylic lactone, dihydroxy-, and its acyl derivatives and salts (v. LIEBIG), A., i, 828; (v. LIEBIG and HURT), A., i, 829.

Triphenylmethane group, some reactions of (VONGERICHTEN and BOCK), A., i, 721.

Triphenylmethanesulphonic acid, *p*-hydroxy-, sodium salt (v. BAEYER, VILLIGER, and HALLENSLEBEN), A., i, 813.

Triphenylmethyl, preparation and condensation of (GOMBERG), A., i, 244.

formula of (HEINTSCHEL), A., i, 243.

condensation of, to hexaphenylethane (GOMBERG), A., i, 81.

Triphenylmethyl bromide, 3,5-dibromo-4-hydroxy- (AUWERS and SCHROETER), A., i, 820.

1:3:5-Triphenyl-2-methylcyclopentane, synthesis of (ABELL), T., 367; P., 18.

Triphenylmethylphenylsulphone (v. BAEYER, VILLIGER, and HALLENSLEBEN), A., i, 812.

2:4:6-Triphenyl-3-methylpyridine and its hydrochloride and picrate (ABELL), T., 363; P., 17.

Triphenylosotriazole, and its tribromo- and *p*-mono- and *tri*-nitro-derivatives (BILTZ and WEISS), A., i, 59.

1:3:5-Triphenylpyrazole (MOUREU and BRACHIN), A., i, 581.

1:3:4-Triphenylpyrazolone, 4-*p*-chloro-5-imino-, and its 1-*p*-bromo- derivative (v. WALTHER and HIRSCHBERG), A., i, 494.

Triphenylsemicarbazide (ACREE), A., i, 862.

2:4:6-Triphenyl-1:3:5-triazine, *tri*-*p*-hydroxy- (DIELS and LIEBERMANN), A., i, 868.

1:3:5-Triphenyltriazoles, chloro-derivatives, synthesis of (v. WALTHER and KRUMBIEGEL), A., i, 661.

1:3:4 Triphenyl-1:2:4-triazolone (BUSCH and WALTER), A., i, 523.

Tripropylcarbinol See Decyl alcohol.

Tripropylenediaminechromium salts (PFEIFFER and HAIMANN), A., i, 464.

Tripropylurethane (v. BRAUN), A., i, 14.

Triple point (SAUREL), A., ii, 15.

Trisaccharides, hydrolysis of, by dilute acids (WOGRINZ), A., ii, 721.

Tritico-nucleic acid, cytosine from (WHEELER and JOHNSON), A., i, 527.

1:3:5 Tritolyltriazoles, synthesis of (v. WALTHER and KRUMBIEGEL), A., i, 661.

Trommer's sugar reaction (SCHAER), A., ii, 344.

Tropane, 3-bromo-, and its salts (WILLSTATTER), A., i, 361.

Tropidine, synthesis of (WILLSTATTER), A., i, 359.

Tropine, synthesis of, from tropidine (WILLSTATTER), A., i, 360; (LADENBURG), A., i, 431.

ψ-Tropine from tropidine (MERCK), A., i, 358.
Tropine- and **ψ-Tropine-methylammonium** salts, 2-bromo- (WILLSPATTER), A., i, 360.
Trotton's formula. See under Thermochemistry.
Truxene from coumarone-tar (KRAEMER), A., i, 332..
 new synthesis of (WEGER and BILLMANN), A., i, 332.
Trypsin (MAYS), A., ii, 559.
 presence of small quantities of, in commercial pepsins (BOURQUELOT and HÉRISSEY), A., i, 376.
 liberation of, from trypsin-zymogen (HEKMA), A., ii, 559.
 action of (SCHWARZSCHILD), A., i, 780.
 action of, on gelatin (KRUGER), A., i, 723.
 law of the action of, on gelatin (HENRI and BANCLES), A., i, 591.
Tryptophan, the precursor of indole in proteid putrefaction (ELLINGER and GENTZEN), A., i, 781.
 constitution of (HOPKINS and COLE), A., i, 590.
Tuberisation, physical conditions of (BERNARD), A., ii, 170.
Tuberose blossoms, oil of, and its production during enfleurage (HESSE), A., i, 507.
Tubes, sealed, new apparatus for heating (JUNGHAHN), A., ii, 138.
Tumours, bony, with thyroid-like structure, iodine in (SOLDNER and CAMERER), A., ii, 164.
Tungsten chromium carbide (MOISSAN and KOUZNETZOW), A., ii, 651.
 trioxide, influence of, on the specific rotations of L-lactic acid and its potassium salt (HENDERSON and PRENTICE), T., 259; P., 12.
Tungstic acid, colloidal, existence of (PAPPADÀ), A., ii, 23.
 reduction of, by nascent hydrogen (REICHARD), A., ii, 217.
Vanadiotungstic acids, complex, salts (ROGERS), A., ii, 376.
Tungsten, titanium, vanadium, and molybdenum, detection and separation of (REICHARD), A., ii, 217.
Tungsten-potassium bronze (v. KNORRE and SCHAFER), A., ii, 23.
Tunny fish, proteid base from the sperm of the (ULPIANI), A., i, 215.
Turmeric, new method of detecting (BELL), A., ii, 251.
Turnbull's blue (CHRIFTIEN), A., i, 685.
Turpentine, application of the phase rule to the distillation of (VÈZES), A., ii, 535.
Turpentine, oil of Bordeaux, analysis of (VÈZES), A., ii, 698.
 separation of mineral oil from (HERZFELD), A., ii, 186.
Typhoid convalescents, serum from (EVANS), A., ii, 674.
Tyrosinase, animal (GESSERT), A., ii, 165.
 in sponges (COTTE), A., ii, 309.
Tyrosine, breaking down of, in seedlings (BERTEL), A., ii, 321.
 colour reaction of (MORNER), A., ii, 252.
 separation of, from leucine (HABERMANN and EHRENFIELD), A., ii, 192.

U.

Umbellularia californica, acids of the seeds of (STILLMAN and O'NEILL), A., ii, 171.
Undecane, β -amino-, and its salts (THOMS and MANNICH), A., i, 680.
β-Undecinene and its dibromide (THOMS and MANNICH), A., i, 674; (MANNICH), A., i, 678.
α-Undecinoic acid (*nonylpropionic acid*) and its esters (MOUREU and DELANGE), A., i, 313.
Undecyl alcohol (*methylnonylcarbinol*) (THOMS and MANNICH), A., i, 673.
 and its acetate (HOUBEN), A., i, 48.
Undecylenic lactone, γ -hydroxy- (BEATTY), A., i, 726.
Uracil, occurrence of, in the animal system (KOSSEL and STEUDEL), A., ii, 311.
 from autolysis of the pancreas (LEVENE), A., ii, 438.
 and 5-bromo-, synthesis of (WHEELER and MERRIAM), A., i, 525.
Uraminopropionic acid, potassium salt (ANDREASCH), A., i, 157.
Uranium, position of, in the periodic system (OECHSNER DE CONINCK), A., ii, 281.
 radioactivity of (RUTHERFORD), A., ii, 347.
 action of, on plants (LOEW), A., ii, 173.
Uranium salts (OECHSNER DE CONINCK), A., ii, 216.
 basic, quadrivalent (ORLOFF), A., ii, 732.
Uranium antimonide, arsenide, phosphide, selenide, and telluride (COLANI), A., ii, 653.
 phosphate, estimation of, by the zinc reductor (PULMAN), A., ii, 761.
Uranous oxide (OECHSNER DE CONINCK), A., ii, 154.

Uranium :—

Peruranates, new class of (ALOY), A., ii, 431.

Uranyl bromide (OECHSNER DE CONINCK), A., ii, 299.

phosphate, estimation of, by the zinc reductor (PULMAN), A., ii, 761.

Urea and sugars, antitoxic effect of (LESNÉ and RICHET), A., ii, 503.

complete decomposition of, by means of nascent sodium hypobromite in an alkaline medium (LE COMTE), A., ii, 518.

reagent for the identification of (FENTON), T., 187.

estimation of (SELLIER; DONZÉ and LAMBLING; ERBEN), A., ii, 581.

estimation of, in blood (BARCROFT), A., ii, 343.

amount and estimation of, in normal human urine (MOOR), A., ii, 343.

estimation of, in urine (ARNOLD and MENTZEL), A., ii, 48; (FOLIN), A., ii, 116, 518; (LE COMTE), A., ii, 518.

estimation of, in urine, by the hypobromite process (PECHELL), A., ii, 192.

estimation of, in urine with mercuric nitrate (LONG), A., ii, 768.

Urea. See also Carbamide.

Ureidodiethyl- and -propyl-malonic acids (GEBRÜDER VON NIESSEN), A., i, 799.

Ureometer, new (SELLIER), A., ii, 581.

Urethane, $C_{11}H_{13}O_2NS_2$, from ammonium phenyldithiocarbamate and ethyl bromoacetate (v. BRAUN), A., i, 15.

Urethane, formaldehyde derivatives of (CONRAD and HOCK), A., i, 607.

Urethanes, dithio-, preparation of (v. BRAUN and RUMPF), A., i, 13; (DELÉPINE), A., i, 156.

Uric acid, formation of, in birds (MILROY), A., ii, 672.

formation of carbamide from (RICHTER), A., i, 468.

effect of alcohol on the excretion of (CHITTENDEN and BEEBE), A., ii, 562.

influence of quinic acid on the excretion of (TALATAVALL and GIES), A., ii, 563.

estimation of, in urine (GITTEL-MACHER-WILENKO), A., ii, 48; (GARNIER), A., ii, 583.

Uric acid, ammonium salt, excretion of, by the serpents' kidneys (TRIBONDEAU), A., ii, 672.

Urinary chlorides, effect of saline injections on (SOLLMANN), A., ii, 562, 670.

Urinary indican (PORCHER and HERVIEUX), A., ii, 672.

secretion, theory of; the retention of chlorides (SOLLMANN), A., ii, 91.

influence of exercise on (GARRATT), A., ii, 313.

Urine, experiments on (CLOWES), A., ii, 562.

electrical conductivity of, in relation to its chemical composition (LONG), A., ii, 165.

effect of diminished excretion of sodium chloride on the constituents of (HATCHER and SOLLMANN), A., ii, 91.

abnormal constituents of the, in epileptic fits (INOUE and SAIKI), A., ii, 317.

relation of the specific gravity of, to the solids present (LONG), A., ii, 520, 742.

acidity of (HÖBER), A., ii, 441; (FOLIN), A., ii, 562.

crystalline colouring matter from (COTTON), A., i, 217.

pigments, chloroformic (MAILLARD), A., ii, 563; (PORCHER and HERVIEUX), A., ii, 672.

decarboxilation of (NEUMANN), A., ii, 243.

ammonia in (LANDSBERG), A., ii, 442.

indoxyl in (GNEZDA; MAILLARD), A., ii, 563.

iron in normal and pathological human (NEUMANN and MAYER), A., ii, 227.

icteric, glycuronic acid in (VAN LEERSUM), A., ii, 444.

homogenitistic acid in, after the administration of phenylalanine (FALTA and LANGSTEIN), A., ii, 496.

phenols, free and united with sulphur, in (MONFET), A., ii, 671.

uroferric acid from (THIELE), A., i, 452.

excretion of bromal hydrate in (MARALDI), A., ii, 442.

horse's, acetone in normal (KIESSEL), A., ii, 670.

of the musk rat (GIBSON), A., ii, 672.

of rabbits, occurrence of amino-acids in the, after phosphorus poisoning (ABDERHALDEN and BERGELL), A., ii, 742.

Urine, analytical processes relating to :—

human, analysis of (CAMERER, PFAUNDLER, and SÖLDNER), A., ii, 688.

detection of acetoacetic acid in diabetic (RIEGLER), A., ii, 112.

Urine, analytical processes relating to:—
 detection of bromine in (SALKOWSKI), A., ii, 571; (CATHCART), A., ii, 572.
 detection of iodine in (CATHCART), A., ii, 572.
 source of error when testing for iodine in (GUERBET), A., ii, 511.
 detection of lactose in, by phenylhydrazine (PORCHER), A., ii, 579.
 detection of mercury in (OPPENHEIM), A., ii, 696.
 detection of proteids in (BERNARD), A., ii, 119.
 pathological, proteids precipitable by acetic acid in (MATSUMOTO), A., ii, 501.
 diabetic, colorimetric detection of sugar in (VENTRE), A., ii, 47.
 estimation of albumin in (JOLLES), A., ii, 48.
 estimation of ammonia in (SHAFFER), A., ii, 180; (FOLIN), A., ii, 239; (KRÜGER and REICH; SCHITTENHELM), A., ii, 688.
 estimation of calcium and magnesium in (DE JAGER), A., ii, 182.
 estimation of chlorine in (BERNARD), A., ii, 98.
 estimation of glycerol in (LEO), A., ii, 160.
 estimation of β -hydroxybutyric acid in (DARMSTAEDTER), A., ii, 394.
 estimation of indican in (ELLINGER), A., ii, 620.
 estimation of iron in (ZICKGRAF), A., ii, 46.
 clinical method for the estimation of mercury in (SCHUMACHER and JUNG), A., ii, 44.
 estimation of the nitrogenous constituents of, by mercuric chloride (FREUND and FELLNER), A., ii, 191.
 estimation of oxalic acid in (ALBARTH), A., ii, 579.
 estimation of potassium in (AUTENRIETH and BERNHEIM), A., ii, 181.
 estimation of potassium and sodium in (HURTLEY and ORTON), A., ii, 695.
 estimation of purine compounds, uric acid, and allouxuric bases in (GITTELMACHER-WILENKO), A., ii, 48; (GARNIER), A., ii, 583.
 estimation of the products of putrefaction in, by means of Ehrlich's aldehyde reaction (BAUMSTARK), A., ii, 619.
 densimetric estimation of sugar in (LOHNSTEIN), A., ii, 187.

LXXXIV. ii.

Urine, analytical processes relating to:—
 estimation of sulphur in, by means of sodium peroxide (MODRAKOWSKI), A., ii, 611.
 amount and estimation of urea in normal human (MOOR), A., ii, 343.
 estimation of urea in (ARNOLD and MENTZEL), A., ii, 48; (FOLIN), A., ii, 116, 518; (LE COMTE), A., ii, 518; (SELLIER; DONZÉ and LAMBLING; ERBEN), A., ii, 581.
 estimation of urea in, by the hypobromite process (PECHELL), A., ii, 192.
 estimation of urea in, with mercuric nitrate (LONG), A., ii, 768.
 estimation of xanthine bases and uric acid in (GITTELMACHER-WILENKO), A., ii, 48; (GARNIER), A., ii, 583.
 See also Alcaptonuria, Diabetes, Diuresis, Excretion, Indicanuria, and Oxaluria.
Urobilin in cows' milk (DESMOULIÈRES and GAUTRELET), A., ii, 500.
Urochrome, reaction of, with acetaldehyde (GARROD), A., ii, 520.
Uroferric acid and its salts (THIELE), A., i, 452.
Ursodeoleic acid (HAMMARSTEN), A., ii, 86.
Usnic acid, formula of, and its oximes and their anhydrides (WIDMAN), A., i, 96.
i-**Usnic acid**, racemic nature of (SMITS), A., i, 263.
Usnolic acid, formula of, and its methyl and ethyl esters and their oximes (WIDMAN), A., i, 97.
Uvarovite from Finland (BORGSTRÖM), A., ii, 304.

V.

Valency, theory of (ABEGG), A., ii, 536.
*iso***Valeraldehyde**, action of formaldehyde on (VAN MARLE and TOLLENS), A., i, 460.
 compounds of, with aniline sulphite (SPERONI), A., i, 247.
Valeric acid, α -amino- γ -hydroxy-, synthesis of, and its copper salt, lactone and its hydrochloride and phenylcarbimide (FISCHER and LEUCHS), A., i, 12.
 bromo-, sodium salt, physiological action of (FÉRÉ), A., ii, 442.
*iso***Valeric acid**, ammonium salts (REIK), A., i, 308.
*iso***Valeric acid**, ethyl ester, action of phenylhydrazine on (BAIDAKOWSKY and SLEPAKA), A., i, 441.

iso-Valero-butyryl and -propion-amides (TARBOURIECH), A., i, 738.

δ-Valerolactone, formation of, from glutaric anhydride (FICHTER and BEISSWENGER), A., i, 459.

β-Valeroxyundecylene (LEES), T., 154.

*iso***Valerylacetic acid**, methyl ester and copper derivative (BOUVEAULT and BONGERT), A., i, 143.

*iso***Valeryacetone** and its copper derivative (BOUVEAULT and BONGERT), A., i, 142.

*iso***Valerylcamphocarboxylic acid**, ethyl ester (BRÜHL), A., i, 65.

*iso***Valeryldiantipyrine** (ECCLES), A., i, 289.

*iso***Valerylphenylhydrazine** (BAIDAKOWSKY and SLEPAKA), A., i, 441.

Vanadinite in the copper mines of Bena de Padru, near Ozieri, Sardinia (LOVISO-SATO), A., ii, 735.

Vanadium, quadrivalent, compounds of (KOPPEL and BEHRENDT), A., ii, 551.

Vanadium tetrachloride, reactions of (STEELE), P., 222.

fluorides, double, constitution of (EPHRAIM), A., ii, 487.

pentoxide, preparation of double compounds of, containing chlorine (EPHRAIM), A., ii, 418, 487.

Vanadic acid, action of hydrochloric acid on (EPHRAIM), A., ii, 487.

reduction of, by nascent hydrogen (REICHARD), A., ii, 217.

reduction of, by the action of hydrochloric acid (GOOCH and STOOKEY), A., ii, 110.

use of zinc for reduction in the estimation of (GOOCH and GILBERT), A., ii, 616.

Vanadates, behaviour of, in aqueous solution (DÜLLBERG), A., ii, 733.

Pervanadic acid (PISSARJEWSKY), A., ii, 66, 432.

Vanadiotungstic acids, complex, salts (ROGERS), A., ii, 376.

Vanadium silicide, $V\bar{S}i_2$ (MOISSAN and HOLT), A., ii, 23.

silicides (MOISSAN and HOLT), A., ii, 81.

Vanadium, titanium, tungsten, and molybdenum, detection and separation of (REICHARD), A., ii, 217.

estimation of (CAMPAGNE), A., ii, 761.

estimation of, in alloys (NICOLARDOT), A., ii, 576.

Vanilla extract, analysis of (WINTON and SILVERMAN), A., ii, 341.

Vanillaldehyde-p-bromo- and -p-nitro-phenylhydrazones and their oxidation (BILTZ and SIEDEN), A., i, 120.

Vanillin, compound of, with sulphuric acid (HOOGEWERFF and VAN DORP), A., i, 170.

estimation of, in vanilla (MOULIN), A., ii, 457.

Vanillin, *o*-amino-, and its acetyl derivative, oxime, and phenylhydrazone (SUMULEANU), A., i, 634.

nitro-, and its potassium derivative (HAYDUCK), A., i, 826.

*iso***Vanillin**, nitro-compounds, and its acetyl and benzoyl derivatives and their 5-nitro-compounds, and their phenylhydrazones (PSCHORR and STÖHRER), A., i, 175.

o-**Vanillinazoiimide** (SUMULEANU), A., i, 635.

Vanthoffite, the lower temperature limit of formation of (VAN'T HOFF and JUST), A., ii, 555.

Vapour density, determination of, under diminished pressure (ERDMANN), A., ii, 62.

of some carbon compounds (RAMSAY and STEELE), A., ii, 635.

of metallic vapours, new method of determining (JEWETT), A., ii, 61.

See also Density.

Vapour density apparatus, new (LUMSDEN), T., 342; P., 40.

Vapour phase. See Equilibrium.

Vapour pressure apparatus (REIK), A., i, 308.

Vapour pressure curves of univariant systems which contain a gas phase (BOUZAT), A., ii, 637.

Vapour pressures and boiling points of mixed liquids (YOUNG and FORTHEY), T., 45; (YOUNG), T., 68.

of aqueous ammonia solution (PERMAN), T., 1168; P., 204.

of bromine in solutions of hydrobromic acid (RICHTER-RJEWSKAJA), A., ii, 717.

of liquid hydrogen and liquid oxygen at temperatures below their boiling points on the constant volume hydrogen and helium scales (TRAVERS, SENTER, and JAQUEROD), A., ii, 9.

of ternary mixtures (SCHREINEMAKERS), A., ii, 530.

of pure nitrogen at low pressures (FISCHER and ALT), A., ii, 72.

of sulphuric acid solutions (BURT), P., 224.

estimation of very small, in certain circumstances (ANDREWS), A., ii, 11.

Vegetable foods, cooked, chemical composition of (WILLIAMS), P., 66.

Vegetable foods, decomposition of, by Bacteria (KONIG, SPIECKERMANN, and OLLIG), A., ii, 447.
Vegetable juices, estimation of boric acid occurring naturally in (HEBE-BRAND), A., ii, 181.
Vegetables, digestibility of (BRYANT and MILNER), A., ii, 739.
 enzyme which reduces nitrates in (ABELOUS and ALOY), A., ii, 678.
Vegetation in atmospheres rich in carbon dioxide (DEMOUSSY), A., ii, 321.
Velocity of reactions. See under Affinity.
Venom, snake. See Poison.
Veratrole, chloro-, bromonitro- and chloronitro-derivatives of (Cousin), A., i, 166.
Verbena, oil of, from Grasse (THEUILIER), A., i, 189.
Vetches, changes in phosphorus in the germination of (IWANOFF), A., ii, 94.
Vetivene and **Vetivenol** (GENVRESSE and LANGLOIS), A., i, 188.
Vetiver, oil of (GENVRESSE and LANGLOIS), A., i, 187.
Vinegar, effect of fermentation on the composition of (BROWNE), A., ii, 231.
 detection and estimation of mineral acid in (SCHIDROWITZ), A., ii, 700.
Vinylacetic acid, new synthesis of (HOUBEN), A., i, 789.
 additive products of (LESPIEAU), A., i, 547.
Vinyl group, behaviour of, on reduction (KLAGES and KEIL), A., i, 553.
Violite from the Caucasus (FEDOROFF), A., ii, 436.
Viscosity of casein solutions (SACKUR), A., ii, 4.
 of liquid mixtures (DUNSTAN and JEMMETT), P., 215.
 of liquid substances in relation to temperature and chemical constitution (BATSCHINSKI), A., ii, 12.
 of solutions (RUDORF), A., ii, 403.
 of phenol in the liquid state (SCARPA), A., ii, 640.
Volatility of gold in presence of zinc (FRIEDRICH), A., ii, 433.
Volcanic dust from Martinique (SCHMELCK), A., ii, 224.
 phenomena, origin of (GAUTIER), A., ii, 222.
Volemitol, presence of, in some Primulaceae (BOUGAULT and ALLARD), A., i, 62.
Volume, atomic, significance of changes of (RICHARDS), A., ii, 132.

Volume, molecular, connection between chemical composition and, of some crystallographically similar minerals (PRIOR), A., ii, 377.
 of inorganic salts in aqueous solution, certain regularities in the (FORCH), A., ii, 714.
 specific, of gaseous air (BEHN), A., ii, 711.
Volumenometer for small quantities of substance (ZEHNDER), A., ii, 198.

W.

Wash-bottle and safety-tube (VIGREUX), A., ii, 643.
Water, synthesis of, by combustion (TECLU), A., ii, 417.
 electrolysis of (WHITNEY), A., ii, 406.
 dissociation constant of, and the E.M.F. of the gas element (PREUNER), A., ii, 51.
 equilibrium between sodium carbonates, carbon dioxide, and (McCoy), A., ii, 413.
 equilibrium between succinonitrile, silver nitrate, and (MIDDELBERG), A., ii, 414.
 influence of air on (KOHLRAUSCH), A., ii, 125.
 action of metallic magnesium on (ROBERTS and BROWN), A., ii, 726.
Distilled water, absorption of ammonia by (THOULET), A., ii, 360.
NATURAL WATERS :—
 estimation of iron in (WINKLER), A., ii, 108.
Drainage water, lysimeter (WELBEL), A., ii, 509.
 colorimetric estimation of phosphoric acid and silica in (VEITCH), A., ii, 329.
Ground waters, the *Bacillus coli* in (HORTON), A., ii, 455.
Rain water, discoloured (CLAYTON), P., 101.
 at Ploty in 1900, 1901, and 1902, composition of the (WELBEL), A., ii, 508, 749.
 radioactivity from (WILSON), A., ii, 194.
Saline water of Kef-el-Malah in the Djebel Amour (LE COMTE), A., ii, 159.
Water from salt marshes, volumetric estimation of calcium and magnesium in (D' ANSELME), A., ii, 695.
Sea-water, arsenic in (GAUTIER), A., ii, 593, 645.

NATURAL WATERS :—

Sea-water, absorption of ammonia by (THOULET), A., ii, 360.
 estimation of ammonia, nitric and nitrous acids in (GEELMUYDEN), A., ii, 577.
 estimation of organic matter in (LENORMAND), A., ii, 697.
Spring and Mineral waters, influence of "decantation" on the composition and bacterial state of (BONJEAN), A., ii, 319.
 arsenic in (GAUTIER), A., ii, 593, 645.
 detection of hydrogen sulphide in (GANASSINI), A., ii, 40.
 of the Grotto at Luchon, free sulphur in the (MOISSAN), A., ii, 209.
 gases from (MOISSAN), A., ii, 209 ; (MOUREU), A., ii, 222.
Potable water, purification of (GURCHARD), A., ii, 17.
 containing magnesia and silica, purification of (REBUFFAT), A., ii, 69.
 polluted, the Causse tests for (RIDEAL), A., ii, 392.

Water analysis :—

detection and estimation of ammonia in, by means of diaminophenol (MANGET and MARION), A., ii, 390.
 estimation of carbon dioxide in (FORBES and PRATT), A., ii, 694.
 estimation of the hardness of, by aqueous soap solution (GAWALOWSKI), A., ii, 185.
 estimation of nitric acid in (SCHMATOLLA), A., ii, 101 ; (FRERICHS), A., ii, 328 ; (MÜLLER), A., ii, 690.
 estimation of nitrates in, by the Schulze-Schloesing method (DE KONINCK), A., ii, 754.
 estimation of organic matter in (LENORMAND), A., ii, 697.
 titration of dissolved oxygen in, with indigo and hyposulphite solution (WANGERIN and VORLÄNDER), A., ii, 99.
 Hartleb's method for the estimation of sulphates in (Rossi), A., ii, 178.

Water gas, thermodynamics of (HAHN), A., ii, 274, 711.
Water-melon seed oil (WIJS), A., i, 602 ; (WOINAROWSKAJA and NAUMOVA), A., ii, 171.
Wax, bees'. See Bees' wax.
 of flax (HOFFMEISTER), A., ii, 448.
 myrtle, constants and composition of (SMITH and WADE), A., ii, 608.

Weight, molecular, determination of (BIDDLE), A., ii, 411 ; (BECKMANN), A., ii, 533.

determination of, by a microscopic method (BARGER), P., 121.
 determinations, modification of the Landsberger apparatus for (LEHNER), A., ii, 411 ; (MEYER and JAEGER), A., ii, 467.
 determinations of, at very high temperatures (NERNST), A., ii, 636.
 determinations of, by the boiling point method (ODDO), A., ii, 60.
 and constitution of carbon compounds in relation to boiling point (HENRY), A., ii, 8.
 of inorganic chloroanhydrides and of iodine (ODDO), A., ii, 60.
 of metallic chlorides, determination of (RÜGHEIMER), A., ii, 725.
 of phenols, alcohols, oximes, and acids in benzene solutions by the boiling point method (MAMELI), A., ii, 711.
 of fused salts as determined by their molecular surface energy (BOTTOMLEY), T., 1421 ; P., 272.

of solid and liquid substances in the Weinhold vacuum vessel (ERDMANN and v. UNRUH), A., ii, 59.

Wheat, assimilation in (ADORJÁN), A., ii, 94, 566.

cultivation of, in the experimental fields at Grignon in 1902 (DEHÉRAIN and DUPONT), A., ii, 96.

Wheat bran, feeding experiments on the utilisation of (KÖHLER, HONCAMP, JUST, VOLHARD, and WICKE), A., ii, 681.

"**White pitch**," Russian (TSCHIRCH and KORITSCHONER), A., i, 106.

Wines from sugar, use of nitrates for the characterisation of (CURTEL), A., ii, 247.

plastered, inversion of sugar in (MAGNANINI), A., ii, 231.

acetaldehyde in the ageing and alterations of (TRILLAT), A., ii, 231.

copper in (OMEIS), A., ii, 322.

occurrence of organic acids in (PARTHÉIL and HÜBNER), A., ii, 765.

occurrence of salicylic acid in (MASTBAUM), A., ii, 703.

zinc in (BENZ), A., ii, 322.

sweet, differentiation between "mistletoes" and (LABORDE ; HALPHEN), A., ii, 689.

detection of citric acid in (SCHINDLER), A., ii, 112.

detection of fluorine in (WINDISCH), A., ii, 40 ; (TUSINI), A., ii, 178.

(*o-Xylene, Me : Me = 1:2 ; m-xylene, Me : Me = 1:3 ; p-xylene, Me : Me = 1:4.*)

Wines, detection of saccharin in (BOUCHER and DE BOUNGE), A., ii, 517.
 detection and estimation of sulphurous acid in (MATHIEU), A., ii, 99.
 estimation of alcohol and extract in, by weight (DEMICHET), A., ii, 337.
 estimation of ammonia in (GAUTIER and HALPHEN), A., ii, 564; (LABORDE; DESMOULIÈRES), A., ii, 689; (HALPHEN), A., ii, 690.
 estimation of glycerol in (TRILLAT), A., ii, 187.
 estimation of lactic, malic, and succinic acids in (KUNZ), A., ii, 701.
 estimation of lactic acid in the volatile acids of (PARTHEIL), A., ii, 189.
 estimation of organic acids in (PARTHEIL and HUBNER), A., ii, 765.
Wollastonite from Bystré, Bohemia (KOVÁČ), A., ii, 553.
Wood, fire-proof, testing (McKENNA), A., ii, 516.

X.

Xanthine, preparation of (BOEHRINGER & SOEHNE), A., i, 868.
Xanthine, thio-, preparation of (BOEHRINGER & SOEHNE), A., i, 740.
Xanthine bases, estimation of, in urine (GITTELMACHER-WILENKO), A., ii, 48.
Xanthones, preparation of (FOSSE), A., i, 510.
Xenon, attempt to estimate the relative amounts of krypton and, in atmospheric air (RAMSAY), A., ii, 476.
Xenotime from Brazil (HUSSAK and REITINGER), A., ii, 553.
Xylamine and its hydriodide (ROUX), A., i, 463.
m-Xylene, 4-nitroamino-2:5:6-trinitro- (BLANKSMA), A., i, 164.
Xylenes, action of sulphur on (ARONSTEIN and VAN NIEROP), A., i, 158, 329.
as-m-Xyleneazo-β-naphthol (v. NIEMENTOWSKI), A., i, 133.
m-Xylene-6-sulphonamide, 4-bromo- (JUNGHAHN), A., i, 22.
m-Xylene-5-sulphonic acid, 4:6-diamino-, and its salts (JUNGHAHN), A., i, 23.
 4-bromo-, and its salts, amide, anilide, and chloride (JUNGHAHN), A., i, 22.
 4-hydroxy-, and its salts (JUNGHAHN), A., i, 23.

Xylenol, bromo-derivatives of (CROSSLEY and LE SUEUR), T., 127.
m-4-Xylenol, 6-bromo- (NOELTING), A., i, 338.
p-Xylenol, diphenylhydrazone of the di-aldehyde from (ANSELMINO), A., i, 122.
Xylenol-alcohol (MANASSE), A., i, 28.
m-Xylydine, acetyl derivative, chloro- and thiocyanato- (JOHNSON), A., i, 580.
4-m-Xylydine-5-sulphonic acid and 6-nitro- and their salts (JUNGHAHN), A., i, 22.
Xylydinesulphonic acids, preparation of (JUNGHAHN), A., i, 473.
p-Xyloquinol, formation of, from *m*-xylylhydroxylamine (BAMBERGER), A., i, 84.
m-Xylo-ψ-quinol and imino- (BAMBERGER), A., i, 83.
l-Xylose, formation of, from *d*-glycuronic acid (SALKOWSKI and NEUBERG), A., i, 7; (KÜSTER), A., i, 402.
Xylose-β-naphthylhydrazone (HILGER and ROTHENFUSSER), A., ii, 187.
m-Xylyl ethyl and ethylene ethers, bromo-derivatives of (STOERMER and GÖHL), A., i, 848.
s-Xylyl methyl ether and its tribromo- and trinitro-derivatives (BLANKSMA), A., i, 164.
Xylaldoximes (SCHOLL and KAČER), A., i, 254.
m-Xylylallylsulphone and its dichloride (TRÖGER and HILLE), A., i, 807.
m-Xylylbromopropylsulphone (TRÖGER and HILLE), A., i, 807.
m-Xylylene bromide, action of, on primary, secondary and tertiary amines, and on potassium cyanate and thiocyanate (HALFPAP), A., i, 578.
m-Xylylenedianthranilic acid and its salts (HALFPAP), A., i, 578.
Xylylenediphthalimide, hydroxy- (TSCHERNIAC), A., i, 490.
m-Xylylenediurethane (HALFPAP), A., i, 579.
o-Xylylenesulphone (AUTENRIETH and BRUNING), A., i, 273.
m-Xylylglycinyl ethyl urethane (FREERICHS and BREUSTEDT), A., i, 18.
β-m-Xylylhydantoin (FRERICHS and BREUSTEDT), A., i, 18.
m-Xylylhydrazonecyanoacetic acid, ethyl ester, and amide and acetyl derivatives (WEISSBACH), A., i, 542.
m-Xylylhydroxylamine, transformation of, into *p*-xyloquinol (BAMBERGER), A., i, 84.

m-xylene, Me : Me = 1:3.

m-Xylyl phenoxyethyl ketone and its oxime and sulphonie acid (STOERMER and ATENSTÄDT), A., i, 41.

m-Xylylthiohydantoic acid (JOHNSON), A., i, 581.

m-Xylyl- ψ -thiohydantoin and its acetyl derivative (JOHNSON), A., i, 581.

Y.

Yeast, chemistry of (SEDELMAYR), A., ii, 745.

biology of (HERZOG), A., ii, 504.

proteolytic enzyme of (SCHÜTZ), A., i, 379.

action of, on proteids (BOKORNY), A., ii, 230.

development of, in sugar solutions without fermentation (IWANOWSKI), A., ii, 319, 386.

end-products of the autodigestion of (KUTSCHER and LOHMANN), A., ii, 670, 737.

Yeasts, some constituents of (HINSBERG and Roos), A., ii, 565.

respiration-coefficient of different, on various nitrogenous nutritive media (WOSSESENSKY and ELISSÉEFF), A., ii, 745.

behaviour of, in mineral solution (KOSOWICZ), A., ii, 386.

occurrence of glycogen in (HENNEBERG), A., ii, 168.

Yeast extract, experiments on (MEISENHEIMER), A., i, 591.

production of hydrogen sulphide from, and the influence of temperature on it (ABELOUS and RIBAUT), A., ii, 605.

Yohimbine and **Yohimbine** and its thiocyanate (SIEDLER), A., i, 195.

Yohimbine, decomposition of, by alkali hydroxides (SPIEGEL), A., i, 274.

Z.

Zein, hydrolysis of, by hydrochloric acid (LANGSTEIN), A., i, 588.

Zeolites from the neighbourhood of Rome (ZAMBONINI), A., ii, 656.

Zinc, occurrence of, in fruit juices and wines (BENZ), A., ii, 322.

electrolytic deposition of (SMITH), A., ii, 334.

boiling point of (FÉRY), A., ii, 293.

velocity of solution of (ERICSON-AURÉN and PALMAER), A., ii, 718.

Zinc, atmospheric corrosion of (MOODY), P., 273.

action of, on microbes in water (DIENERT), A., ii, 447.

Zinc chloride, compound of, with ammonia, in the Leclanché cell (JAEGER), A., ii, 20.

condensations by (DESCUDÉ), A., i, 735.

oxide (DE FORCRAND), A., ii, 20.

solubility of, in water (DUPRÉ and BIALAS), A., ii, 293.

sulphide, preparation of crystallized (VIARD), A., ii, 427.

Zinc cobaltcyanide and its alkali double salts (FISCHER and CUNTZE), A., i, 76.

sodium, and potassium cyanides (SHARWOOD), A., i, 684.

ethyl, interaction of, with benzene-diazonium chloride (BAMBERGER and TICHWINSKY), A., i, 131; (TICHWINSKY), A., i, 441.

ethyl iodide, preparation and isolation of, and the action of allyl haloids on (GWOSDOFF), A., i, 795.

ferrocyanide (MILLER and DANZIGER), A., i, 18.

potassium ferrocyanides, composition of (MILLER and DANZIGER), A., i, 18.

Zinc, estimation of, by Cohn's method (DE KONINCK and GRANDRY), A., ii, 105.

estimation of, electrolytically, from alkaline solutions (AMBERG), A., ii, 614.

estimation of, iodometrically, with potassium ferrocyanide (RUPP), A., ii, 695.

estimation of, volumetrically (KÜSTER and ABEGE), A., ii, 182.

estimation and separation of, by electrolysis (HOLLARD), A., ii, 453.

estimation of, as sulphide (THIEL), A., ii, 105; (THIEL and KIESER), A., ii, 334.

separation of, electrolytically, from iron (HOLLARD and BERTIAUX), A., ii, 513.

separation of, from nickel by hydrogen sulphide in a solution containing gallic acid (LEWIS), A., ii, 454.

Zinc blonde from Russia (NENADKEWITCH), A., ii, 378.

Zinc dust, apparatus for the gasometric evaluation of (DE KONINCK), A., ii, 758.

Zinc ores, detection of cadmium in (BIEWEND), A., ii, 105.

Zircon group (STEVANOVIC), A., ii, 301.

Zirconia, native, from Brazil (HUSSAK and REITINGER), A., ii, 553.

Zirconium, extraction of (WEDEKIND), A., ii, 80.

colloidal (WEDEKIND), A., ii, 652.

oxide (*zirconia*), reduction of (WEDEKIND), A., ii, 81.

Zirconium peroxide (GEISOW and HORKHEIMER), A., ii, 109.

Zirconium, separation of iron, quantitatively, from (GEISOW and HORKHEIMER), A., ii, 109.

Zoisite, red, from Moravia (SLAVÍK), A., ii, 557.